FIRE ENGINEERING

The Journal of the Fire Protection Profession Since 1877

APR 25

APRIL, 1949

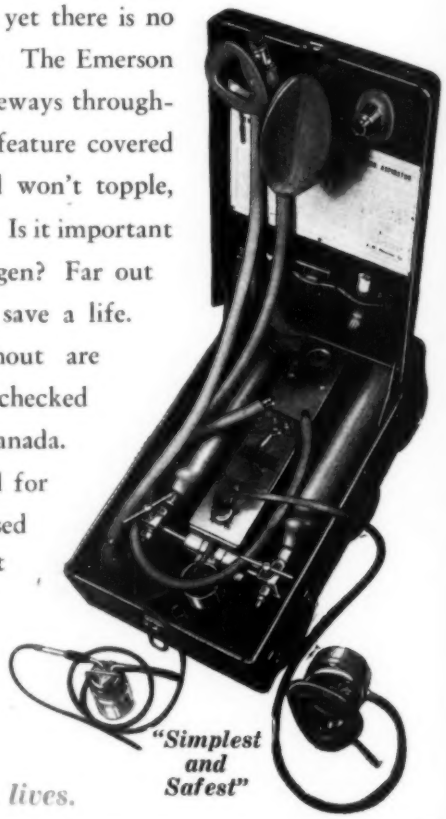
Army Stores Create Spectacular Fire at Oakland, Calif., Army Base Fire (See Story Elsewhere in This Issue)

A CASE - SHEPPERD - MANN PUBLICATION

GOOD REASONS WHY EMERSON RESUSCITATORS *are* TRUSTED IN EMERGENCIES

1. *Simplicity* In asphyxial emergencies speed saves lives and simplicity means speed. Emersons have it. Turn on the oxygen, move one lever and apply the mask. **2. *Safety*** The pressures are effective, yet have never harmed a lung, not even a baby's. They are approved by the American Medical Association—and are not adjustable. ★ More oxygen is brought to the lungs than by manual artificial respiration, yet there is no bodily pressure to endanger an injured or burned person. ★ The Emerson Resuscitator mounted in the carrying case has separate passageways throughout the mechanism for inhaled oxygen and exhaled gases (a feature covered by U. S. Patent No. 2268172). ★ The case sets flat and won't topple, even if an extension hose is tugged. **3. *Efficiency*** Is it important that your Emerson runs longer on a given quantity of oxygen? Far out on a beach or at some other remote place this factor may save a life. **4. *Quality*** Workmanship and materials throughout are superlative, guaranteed by the factory (for two years) and checked by our representatives throughout the United States and Canada. **5. *Adaptability*** Standard models can be adapted for *dual, triple,* or *quadruple* use. ★ Extension hoses can be used to give full protection 100 feet or more away from the parent machine, complete with *aspirator* (as well as *resuscitator* and *inhalator* functions). ★ Large cylinders can be hooked up, for long cases, by using a flexible connector. ★ Small cylinders can be changed with one hand by a man who is holding the mask on a patient's face with the other.

These advantages mount up. They can help you save lives.



"Simplest and Safest"

WE'RE INTERESTED IN KNOWING MORE ABOUT EMERSON EQUIPMENT

PLEASE HAVE YOUR REPRESENTATIVE CALL ☐
PLEASE SEND US ADDITIONAL LITERATURE AND MEDICAL REFERENCES ☐

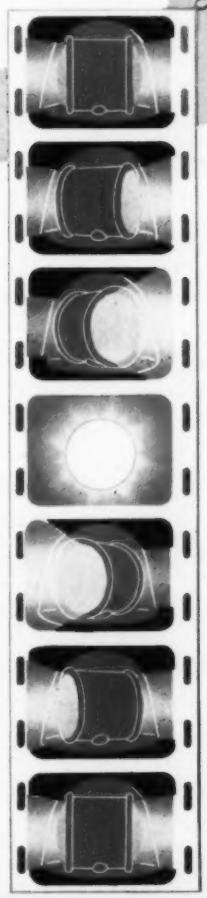
Name _____ Title _____

Address _____

_____

J. H. EMERSON CO.
22 COTTAGE PARK AVENUE, CAMBRIDGE 40, MASS.

Beacon Ray Light Eclipses ALL OTHER WARNING LIGHTS!



Your Beacon Ray Light is your badge of authority in any emergency, on the way or at-the-scene.

Don't be content with ordinary warning light protection, danger may lurk at any point of the compass. Protect all-the-way with Beacon Ray.

Only Beacon Ray gives all-around 360° protection, not just front end or front and rear protection, but *full 360°* front *sides* and rear.

Reliable, longer lasting, due to superior design which has eliminated oscillating parts. Totally enclosed from weather influences—seals working parts from sleet, snow, rain, dust and mud. All moving parts of Beacon Ray are *inside.*

Specify Beacon Ray Light and Federal Coaster Sirens on all *NEW* Apparatus!

FEDERAL ENTERPRISES, INC.

formerly: FEDERAL ELECTRIC COMPANY, INC.

8702 SOUTH STATE STREET CHICAGO 19, ILLINOIS

FIRE ENGINEERING

A Consolidation of FIRE AND WATER ENGINEERING, THE FIRE ENGINEER, FIRE PROTECTION *and* FIRE SERVICE

CONTENTS

Vol. 102 — April, 1949 — No. 4

	Page
With the Editor — By Fred Shepperd	259
Coordinated Attack Urged to Improve Fire Control Strategy — By Roi B. Woolley	260
Fire Fighting Sheriff — By William Bender, Jr.	265
Tense Drama in Rescue of Driver from Butane Fire — A Staff Report	268
Two Major Fires in a Day Give Oakland Firemen a Workout — A Staff Report	270
Six Die in Quick Destruction of 77-Year-Old Ripon Hotel	272
Two Detroit Firemen Lost in Round of Multiple Alarm Fires	273
Foam Fire Protection of Solvent Process Buildings — By C. L. Jones	274
Correspondence	279
News of the Manufacturers	280
Book Shelf	280
The Watch Desk — By Roi B. Woolley	281
False Alarms	282
World-Wide Fire News — By Roi B. Woolley	288
Short Cuts and Gadgets	292
Questions and Answers	294
The Round Table — All Year 'Round Firemen's Training	296
Obituaries	301
Persons in the News	302
What's Burning	306
Convention Dates	311

FRED SHEPPERD
Editor

ROI B. WOOLLEY
Assistant Editor

Team Work

TO the average fireman, "mutual aid" is associated with cooperation between fire forces in time of major emergencies or conflagrations only.

● But mutual aid can be priceless as well in time of lesser crises.

● Just how cooperative and coordinated effort of numerous agencies, including fire, police, highway, railroad and plain citizens in a minor but nonetheless critical emergency can be was demonstrated on a highway in Contra Costa County, Calif., in March. That dramatic story is told in this issue of FIRE ENGINEERING.

● This episode should be taken to heart by all fire departments—municipal, township, and rural.

● It doesn't call for much in the investment of anything but energy and good judgment to set up such cooperative endeavor. It merely means getting together and organizing all the emergency forces that might be needed in any kind of emergency—large or small—into a simple, workable program or plan, such as Contra Costa County has.

● Only one other detail is requisite: it calls for selection of the most competent man in the service within the area to administer the plan—and for courage in giving him the authority to make it function when the crisis comes.

The Publishers

FIRE ENGINEERING

The Journal of the Fire Profession since 1877; published on the fifteenth of each month by Case-Shepperd-Mann Publishing Corp., 24 West 40th St., New York 18, N. Y., also publishers of *Water Works Engineering, Sewage Works Engineering*, etc. ¶Subscription price: U. S., Latin America and Canada, $3.00 a year; Foreign, $4.00; Single copies, 35c. ¶Member of Audit Bureau of Circulations and Associated Business Papers, Inc. ¶Entered as second-class matter April 15, 1929, at the Post Office at New York, N. Y., under Act of March 3, 1879.

¶Contents of this issue copyrighted, 1949, by Case-Shepperd-Mann Publishing Corp.

President and Advertising Director, KARL M. MANN; Vice-President and General Manager, I. HERBERT CASE; Secretary and Editorial Director, FRED SHEPPERD; Assistant Advertising Director, WALTER H. FREDRICKS; Eastern Representative, ALFRED J. HOUGHTON; Advertising Manager, WILLIAM J. GIBSON; Circulation Manager, W. B. TOPHAM. CHICAGO OFFICE: W. S. CLEVENGER and L. M. ROCHE, 8 So. Dearborn St., Chicago 3, Ill.; SAN FRANCISCO: CHARLES H. WOOLLEY, 605 Market Street, San Francisco 5, Calif.; LOS ANGELES: AUGUST HAUBIN, 6000 Miramonte Blvd., Los Angeles 1, Calif. ¶Printed in U. S. A.

A CASE-SHEPPERD-MANN PUBLICATION
"Specialized Leadership"

This MACK gives Munster

"THE BEST IN FIRE PROTECTION"

. . . says Chief Vander Vaart — Munster, Indiana, F. D.

"Munster, one of the fastest-growing communities in the country, was in need of fire apparatus. Accordingly, a very stringent and far-seeing set of specifications was presented by this department. Problems of present and future needs were not underestimated. A Mack was our resultant decision.

We have recently received delivery of our new Mack Type 85, 750-gallon triple combination pumper -- and can boast of this apparatus more than fulfilling our expectations. Its quality is superb in every detail. The powerful 707 cubic inch displacement engine is commensurate with the highly efficient pressure-volume centrifugal pump.

Now the people of Munster, our very able Board of Trustees and the Fire Department are assured of the best in fire protection."

Chief Vander Vaart's experience reflects that of more than 1,000 communities where Macks are regarded as the finest in fire apparatus. You'll give your community the best in protection, too, when you *Modernize with Macks.*

Mack

FIRE APPARATUS

Mack Manufacturing Corporation
FIRE APPARATUS DIVISION
Long Island City 1, New York

Factory branches and dealers for parts and service in all principal cities. In Canada, Mack Trucks of Canada, Ltd.

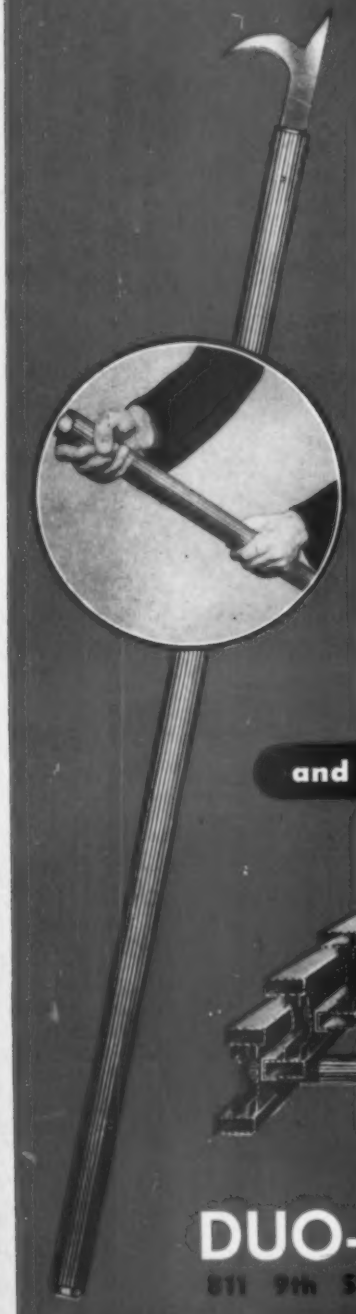
TRIPLE COMBINATION PUMPERS — 500 TO 2000 GALLONS . . . SQUAD WAGONS . . . CITY SERVICE AND QUADRUPLE COMBINATION LADDER TRUCKS

It will help if you will mention FIRE ENGINEERING *when writing advertisers*

Now Available

A NEW Duo-Safety

ALUMINUM PIKE POLE COMBINING

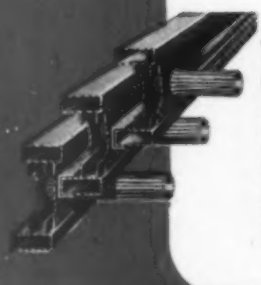


STRENGTH, LIGHTNESS and Positive-Grip!

Here's a sensational development by Duo-Safety . . . a new, aluminum-alloy pike pole that combines the strength and lightness of aluminum, plus a positive grip feature, to provide the very best in geared-for-action fire-fighting equipment. Constructed with a rugged steel head, permanently pressed fit and riveted to the serrated tubing—serrations are smoothly rounded to furnish perfect gripping, yet there are no sharp, cutting edges. Duo-Safety new aluminum pike pole is designed to give fast action where speed and dependability count. Write for free, colorful file catalog giving full information on the complete Duo-Safety fire ladder line.

Inset view illustrates the deep, non-cutting serrations of Duo-Safety's Series 600-A Aluminum Pike Pole. Note how a firm grip can be maintained without danger of hands slipping.

and for the best in Ladder equipment use . . .

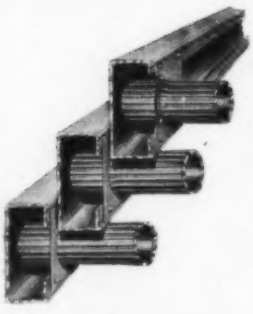


Series 500-A

TUBULAR RAIL

For Service Trucks

All-aluminum fire ladder series for service trucks. Includes two and three section extension ladders; roof, wall and folding ladders in various lengths. Extremely easy to handle, triple-strength, longer life.



Series 700-A

CHANNEL RAIL

For Pumper Use

All-aluminum fire ladder series for pumper equipment. Safe, strong, and available in two and three section extension, roof and wall ladders in a variety of lengths.

DUO-SAFETY LADDER CORP.

811 9th STREET OSHKOSH, WISCONSIN

How B.F.Goodrich end protection ends hose "blowouts"

Makes fire hose safer, longer-lived, more economical

NOT ONE length — not *one!* — of the millions of feet of end-protected fire hose sold by B. F. Goodrich distributors has ever been known to "blow out" next to the coupling. The reason: exclusive, patented B. F. Goodrich end protection fortifies each end with a foot of hard cotton cord ply, that adds years of safe life to the hose. It protects the critical coupling area from damage that causes blowouts, this way —

Stops tube cracks, caused by coiling —Some fire departments coil their hose by rolling it round the coupling as a reel. This kinks the hose; then the coupling presses on the kinked part like a vise. Ordinary fire hose tubes will give way under this strain. B. F. Goodrich end-protected fire hose stands this treatment without damage.

Applying coupling won't damage it — When a coupling is applied, the "bite" of the expansion ring will sometimes cut or weaken ordinary tubes. B. F. Goodrich end protection gives an extra cushion of cord to take the thrust of the ring without damage. It helps make a tighter union between hose and coupling, too.

Making connections won't damage it — Hose is sometimes twisted out of shape or strained when being coupled or uncoupled to hydrant or fire engine discharge gate. And, after coupling, it is under continual flexing by the pulsation of the water passing through it. End-protected B. F. Goodrich hose withstands these service conditions without weakening.

Other B. F. Goodrich hose features — Other protective features that add to the safety and service you get from B. F. Goodrich fire hose: rubber compound ingredients that keep the tube "young" for longer; prestretched cord woven under tension for uniform jacket strength; Hydroseal treatment that protects from freezing, mildew and rotting; all standard couplings available. See this better fire hose at your local distributor's. *The B. F. Goodrich Company, Industrial and General Products Division, Akron, Ohio.*

B.F.Goodrich
RUBBER FOR INDUSTRY

HERE'S MORE POWER TO YOU!

NOW... 3½ YEARS

OF EVIDENCE FROM USERS LIKE THESE

LEECE-NEVILLE HIGHER-OUTPUT A-C GENERATING SYSTEMS KEEP BATTERIES UP—COSTS DOWN . . . SUPPORT MORE ACCESSORIES!

● In the three years since their introduction, Leece-Neville *HIGHER*-output A-C Generating Systems have been applied so successfully on so many thousands of fire department and other vehicles, their acceptance is established throughout the nation. If *you* could use more electrical power to advantage in the operation of your equipment, here are the original A-C systems that will pay for themselves many times over by keeping batteries fully charged—prolonging battery life—eliminating battery maintenance. Further, their amazing output will permit you to use accessories without limitation and add accessories as you choose. Get all the details at your nearest Leece-Neville Service Station or write *The Leece-Neville Co., Cleveland 14, Ohio.*

The original A-C Systems are still the *only* ones offering all these *proved* advantages!

● Alternator systems can provide 50 amperes (or more) with engine idling and full output at all driving speeds to keep batteries fully charged while supporting the unlimited use of accessories.

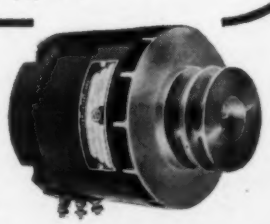
● Weigh 60% less than D-C equipment of comparable rating.

● Require less space and less support.

● Require less maintenance and operate with less danger of burn-out because Alternator has no commutator with commutating brushes or no rotating armature windings to cause sparking.

● Eliminate radio "fade out" and range reduction caused by weak batteries—hold radio noise level to an absolute minimum and prolong life of radio equipment.

THIS ALTERNATOR is the heart of the popular Leece-Neville A-C Generating System rated at 14 volts—100 amperes. Other 14-volt systems rated at 60, 80 and 150 amperes. For 6-volt circuits, there is a 45-ampere system (convertible to 60) and an 80-ampere system.



LEECE-NEVILLE

Pioneer and STILL Quality Leader

CRANKING MOTORS • GENERATORS • VOLTAGE REGULATORS • SWITCHES

Kindly mention FIRE ENGINEERING *when writing advertisers*

Of Course He Can Put the Fire Out!

HE HAS AN INDIAN FIRE PUMP

There's no doubt about the result when this "one man fire department" goes into action. "They are worth their weight in gold". These are some of the praises firemen write us about **INDIAN FIRE PUMPS.** They are the leading hand extinguishers for fighting Class A fires according to fire departments and foresters. Ask one of these men who have used them. "Water wetting" agents work best in INDIANS and do not harm the tank.

Now is a good time to be sure you are amply supplied with **INDIAN FIRE PUMPS.** Available with Armco zinc grip steel tanks lined with asphaltic base paint or with solid brass or chrome plated tanks. Send for catalog describing these famous back pack extinguishers.

D. B. SMITH & CO.

406 Main Street
UTICA 2, N. Y.

PACIFIC COAST BRANCHES:

Mercoid Equipment & Rubber Co., Inc.
635 Brannan Street
San Francisco 7, California

Ray C. Soule Company
817 East Third Street
Los Angeles, California

Fred E. Bennett Company
2900 S. E. 8th Ave.
Portland, Oregon

Fred E. Bennett Company
646 Sprigg Street
Klamath Falls, Oregon

Mill & Mine Supply, Inc.
2700 Fourth Avenue South
Seattle, Washington

L. H. Curtis & Sons
426 West Third Street South
Salt Lake City, Utah

CANADIAN AGENTS:

Flack Bros. Limited
110 Alexander Street
Vancouver, B. C., Canada

Baker Equipment Company, Limited
263 Duke Street
Montreal 3, Canada

Put the INDIAN Sign on Every Fire!

Everything in Protection

MSA

SAFETY EQUIPMENT HEADQUARTERS

M·S·A Streamlined Fireman's Helmet

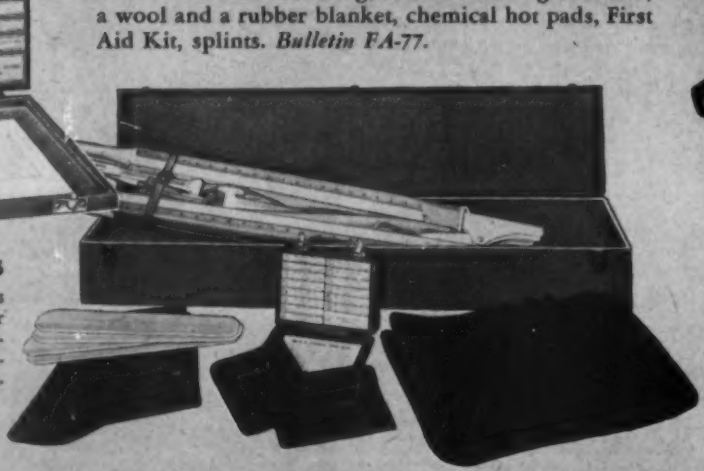
Smoothly curved for strength, utility and appearance, this popular Helmet withstands severe impact, heat, water and chemicals without injury. Light and comfortable to wear—one-piece molded of laminated bakelite—design deflects hot water, embers from neck and face. Shock-absorbing cradle in crown; rubber-cushioned sweatband. Detachable winter lining also available. *Bulletin DX-9.*

Edison Electric Floodlight

Brilliant, dependable illumination with easy portability. Uses sturdy Edison steel-alkaline cells for years of service. 25,000 candlepower with polished reflector. U.S. Bureau of Mines-approved for hazardous locations. *Bulletin M-10.*

M·S·A Stretcher Outfits

A complete line of stretchers including the illustrated M.S.A. Folding Stretcher Outfit. Compact steel case, ideal for vehicle mounting, contains folding stretcher, a wool and a rubber blanket, chemical hot pads, First Aid Kit, splints. *Bulletin FA-77.*



M·S·A First Aid Kits

Weatherproof, dustproof Kits meeting all requirements for fire department service, containing unit-packaged treatments and materials for emergency use. *Bulletin FA-91.*

H-H Inhalator

Known and used everywhere for effective resuscitation. Supplies correct oxygen-carbon dioxide mixture to lungs of victim in conjunction with artificial respiration—safe, simple, dependable. Bulletin CA-9.

n for the modern Firefighter!

As the world's largest manufacturer of safety products, M.S.A. is headquarters for the finest in protective equipment required by today's fire departments. In quality, comfort, performance and durability, M.S.A. equipment leads the field . . . kept in front by premier research, exacting manufacture and long experience with the fireman's safety needs. For top service and value, specify *"M.S.A.—all the way!"*

M·S·A Chemox® SELF-GENERATING

Oxygen Breathing Apparatus

Light and compact, CHEMOX supplies all the oxygen you need in unbreathable air—*generated as you breathe in a replaceable chemical canister!* Non-fogging lenses—no cylinder, high pressure lines or fittings—U.S. Bureau of Mines-approved for 45 minutes' minimum service per canister—simple to maintain. *Bulletin B-14.*

M·S·A Demand Mask

Uses the M.S.A. Demand Regulator for automatic supply of compressed oxygen (or air) from back-carried cylinder, according to breathing requirements. U.S. Bureau of Mines-approved for 30 minutes' service—light metal carrying frame—padded leather harness for comfortable wear. *Bulletin B-16.*

M·S·A Type "S" All-Service Gas Mask

The standard fireman's Mask for gas and smoke protection where oxygen is present in air to support life—now available with new M.S.A. Speaking Diaphragm, for clear speech transmission without batteries or wires.

Write for details.

. . . and many other first quality safety products . . . Check your M·S·A representative on your Department needs.

SUSTAINING MEMBER: INTERNATIONAL ASSOCIATION OF FIRE CHIEFS

MINE SAFETY APPLIANCES COMPANY

BRADDOCK, THOMAS AND MEADE STREETS · PITTSBURGH 8, PA.

At Your Service:

54 BRANCH OFFICES IN THE UNITED STATES AND CANADA

REPUBLIC
Recognizes the Abuse --- Fire Hose Receives

● Republic knows that its fire hose must withstand exposure to summer heat and winter cold, as shown in the picture. Republic knows, too, that its hose will be dragged over rough pavements, and that traffic conditions will not treat it kindly. Republic is also aware of the disaster that may result if the hose blows out or if the coupling comes loose, due to pump pulsation. With these and other facts in mind, Republic builds fire hose for maximum safety.

The weave is hydrostatically balanced and jackets are matched so that each carries its share of the load. The rubber lining is compounded for maximum flexibility and age resistance. The cotton cover is waxed and Provar Processed for protection against mildew; this gives longer life to the hose.

Ask your fire equipment distributor for fire hose made by Republic.

MECHANICAL RUBBER GOODS BY
REPUBLIC RUBBER DIVISION

REPUBLIC RUBBER DIVISION
LEE RUBBER & TIRE CORPORATION . . YOUNGSTOWN, OHIO
Lee DeLuxe Tires & Tubes . . Conshohocken, Pa.

NEW CRASH RESCUE TRUCK THROWS 4800 GALLON-PER-MINUTE FogFOAM "Blizzard" ON AIRPLANE FIRES

In the photograph above, you see a "blizzard" of FogFOAM being discharged on a severe gasoline fire around a plane during a drill. A wide path for rescue operations was immediately created between the plane and crash truck.

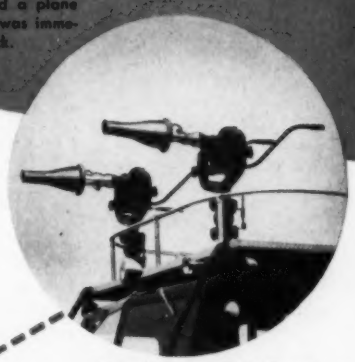
Passengers, whose lives might otherwise be lost, can now be rescued within seconds, in plane crashes at airports, by means of a new development — Rockwood FogFOAM.

Rockwood FogFOAM Systems for both new and old crash-rescue fire trucks have proved that they can knock out such fires — all in a matter of seconds. They will save lives that could not be saved with old style crash fire fighting equipment.

The Rockwood FogFOAM System is shown in action here on a remarkable new type of crash-rescue truck which is now in service in three of the world's leading airports, located in the New York area — LaGuardia, New International and Newark.

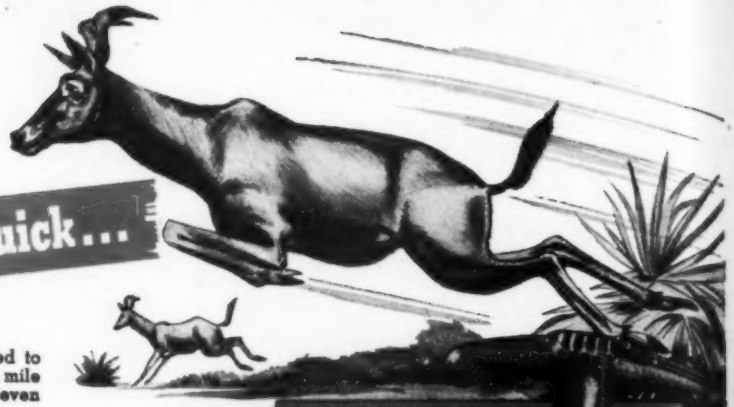
This truck embodies the requirements for crash-rescue operations by the management of these airports.

This latest truck was designed and built by Maxim Motor Company on a Walter four wheel drive chassis. The FogFOAM System for the truck was designed and manufactured by Rockwood Sprinkler Company. If you are planning a new crash-rescue truck or revamping an old one, specify a Rockwood FogFOAM System. Write for specifications.



Note how FogFOAM Screens on turret nozzles (bottom) can be quickly changed to Foam Shapers (top) which throw solid foam streams. Same nozzles will discharge WaterFOG.

ROCKWOOD SPRINKLER CO.
54 HARLOW ST. WORCESTER 5, MASS.
Specialists in Fire Prevention Engineering Equipment and Installation since 1907



The Hartebeest is Quick...

This African antelope depends on its speed to elude its enemies; can sprint at better than a mile a minute. The hartebeest easily outdistances even the greyhound.

BUT...

Nothing is Quicker than GENERAL QUICK AID FIRE GUARD For Fighting Fire!

When fire strikes, every second counts. The speed of your fire extinguisher may mean the difference between a small blaze and a huge loss in life and property. The exclusive patented Safety Phlare and Panic Proof handle found only on Quick Aid Extinguishers enable you to fight fire fast and fight it effectively. Quick Aid Vaporizing Liquid Extinguisher (shown at right) is widely recognized as America's great utility fire extinguisher, and is Underwriters' Approved for office, factory, home, store, farm, car, truck, boat, or plane. Recommended for gasoline, oil, paint, electrical, and similar fires. Available in 1 and 1½ qt. sizes. Look in the classified section of your telephone book for the Quick Aid trade mark, or write direct for the name of your nearest dealer.

THE GENERAL DETROIT CORP.
DETROIT 7, MICHIGAN
NEW YORK • ATLANTA • CHICAGO • DALLAS
Subsidiaries:
THE GENERAL PACIFIC CORP.
LOS ANGELES • SAN FRANCISCO • SEATTLE
THE GENERAL DETROIT CORP., CANADA, LTD.
WINDSOR • MONTREAL • TORONTO • WINNIPEG

Engineered and Built by MAXIM

The Port of New York Authority

RESCUE TRUCK

for

New York International Airport

New York International Airport, seven times the size of La Guardia Field, is destined to become the crossroads of the world. Fire protection was a major consideration. We furnished the answer after a year of engineering. This rescue truck is the same as furnished La Guardia and Newark Airfields, and is typical of what any flying field or community can have, when they come to MAXIM with their problem. The intelligent answer to many of today's fire protection and fire fighting problems is much more than just another piece of apparatus.

MAXIM MOTOR COMPANY, MIDDLEBORO, MASS.

Kindly mention FIRE ENGINEERING *when writing advertisers*

QUALITY • SERVICE • COMFORT • STYLING • QUALITY • SERVICE • COMFORT • STYLING • QUALITY • SERVICE

WORN FROM COAST TO COAST

WENTWORTH "HEAD-MASTER"

(Registered U. S. Patent Office)

FIREMAN UNIFORM CAPS

AMERICA'S FINEST

FOR COMFORT — QUALITY — STYLING SERVICE

Wentworth "HEAD-MASTER" uniform caps are made by highly skilled workmen. These men are Masters of their Craft. Only the finest standard materials are used in Wentworth "HEAD-MASTER" caps to insure you of getting the same fine quality year after year.

For more than half a century we have specialized in making the finest quality Fire and Police Department uniform caps, and many Chiefs say that the "HEAD-MASTER" is the BEST UNIFORM CAP ON THE MARKET.

WRITE TODAY FOR OUR LATEST CIRCULAR ON UNIFORM CAPS AND BADGES

Our latest circular shows over 25 different styles of "HEAD-MASTER" uniform caps, and over 50 different badges. There are styles to meet the needs of the most exacting Fire Department. Each cap is a Masterpiece, constructed from the lightest, yet strongest materials to give your men the maximum in Comfort, Quality, and Service.

Yet, YOU PAY NO MORE for the Extra Quality of Wentworth's "HEADMASTER" uniform caps—they are AMERICA'S GREATEST CAP VALUE.

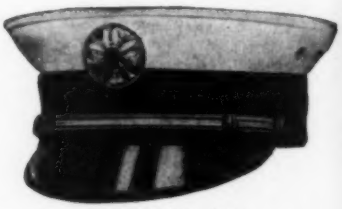
ORDER DIRECT OR SEE YOUR LOCAL DEALER

Over 400 Fire Equipment Dealers and Stores handle the Wentworth "HEAD-MASTER" Fireman Cap, throughout the United States and Its Territories. When ordering from your local dealer be sure you insist on Wentworth "HEAD-MASTER" caps. If he does not carry our caps tell him to write to us.

A PROVEN QUALITY PRODUCT

Our Fifty-fourth Year

CHIEF OR ASSISTANT CHIEF
With Black Velvet Band

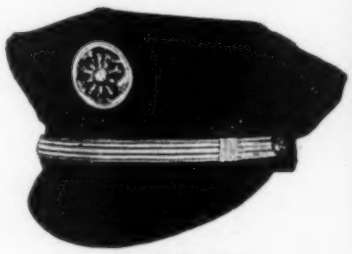


STYLE No. 244

THE IDEAL ALL-YEAR-ROUND CAP

STYLE No. 149

8-POINT FIREMAN CAP
Ventilated Braid Band



STYLE No. 541

AIR CORP STYLE

STYLE No. 741

America's Uniform Cap and Badge Headquarters

WENTWORTH-FORMAN CO., INC.

21 - 23 EDINBORO STREET, BOSTON 11, MASS.

QUALITY • SERVICE • COMFORT • STYLING • QUALITY • SERVICE • COMFORT • STYLING • QUALITY • SERVICE

ANOTHER LIFE SAVED...
E & J RESUSCITATORS HAVE BEEN
MAKING LIFE-SAVING HISTORY
FOR OVER 22 YEARS

DOES YOUR DEPARTMENT HAVE ONE?

The simplicity of operating these versatile machines has made it possible for Fire Departments to give community life-saving service unparalleled in history. Progressive departments continue to choose the E & J Resuscitator because of its *safety*, its *effectiveness*, and its *dependability*... life-saving equipment *unexcelled* in its field!

Your community relies upon you to give them the best protection available. Write for the full story on E & J Resuscitators. It will be sent gladly, without obligation.

inhalator

If finances are limited, write for the E & J plan to help you raise funds for your resuscitator.

E and J

resuscitator

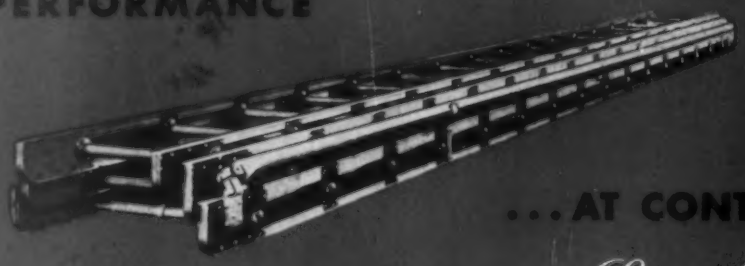
aspirator

The E & J Resuscitator is approved for your use by the American Medical Association Council on Physical Medicine.

E & J MANUFACTURING CO., Dept. K-3, GLENDALE 1, CALIFORNIA

Continued

TOP PERFORMANCE



...AT CONTINUED

Low Cost

built into the specifications of every original ALUMINUM LADDER

SPECIFICATIONS FOR TYPE 3EL HEAVY DUTY EXTENSION LADDER (ILLUSTRATED)

Model	LENGTH OF LADDERS		Thickness	Weight	Price
	Unextended	Extended			
30′ 3 EL 1	13′ 9″	32′ 5″	10⅛″	109 lbs.	$224.25
35′ 3 EL 2	14′ 11″	35′ 11″	10⅛″	117 lbs.	253.05
40′ 3 EL 3	16′ 1″	39′ 5″	10⅛″	153 lbs.	272.20
45′ 3 EL 4	18′ 5″	46′ 5″	10⅛″	174 lbs.	327.25
50′ 3 EL 5	19′ 7″	49′ 11″	10⅛″	181 lbs.	366.10
55′ 3 EL 6	21′ 11″	56′ 11″	10⅛″	201 lbs.	404.90
60′ 3 EL 7	23′ 1″	60′ 5″	10⅛″	211 lbs.	441.35
65′ 3 EL 8	25′ 5″	67′ 5″	10⅛″	232 lbs.	473.15

Our 18 years' pioneering in the development of light, strong aluminum fire ladders has double significance to your selection of truck ladders. Valuable, hard - earned experience has taught us how to build ladders that handle easier and last longer. *And* this experience enables us to produce such ladders at the lowest possible cost to you.

Year after year, original aluminum ladders bring new speed, new *safety* to fire departments throughout the nation. For your next purchase of ladders, specify fire-proof, rust-proof, *age*-proof *original* aluminum ladders.

SINGLE WALL LADDERS • TWO, THREE, FOUR SECTION EXTENSION LADDERS • ROOF LADDERS FOLDING AUXILIARY LADDERS • PIKE POLES

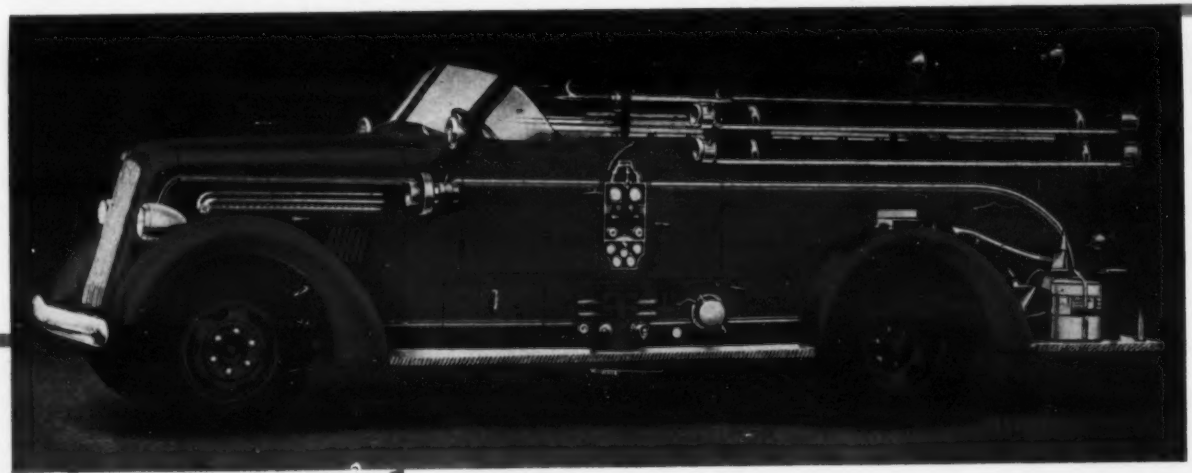
For specifications and prices, write for Bulletin 200

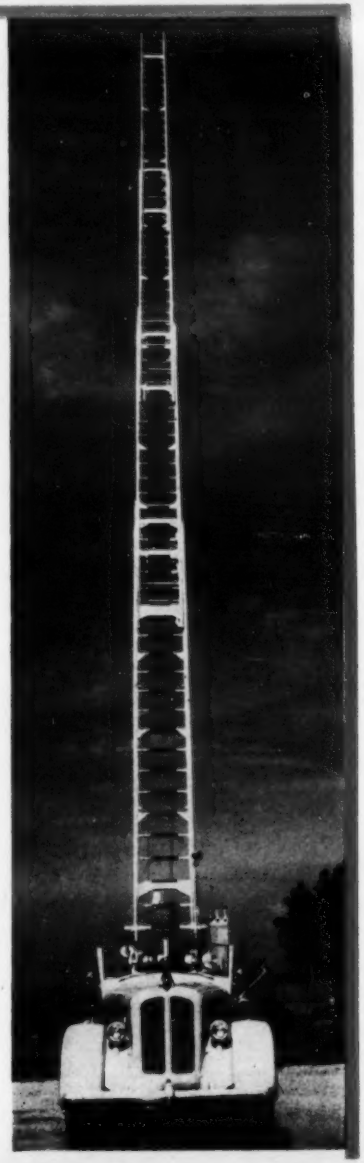
CANADIAN REPRESENTATIVE: C. E. HICKEY & SONS, LTD., HAMILTON, ONT.

ORIGINAL MANUFACTURERS OF ALUMINUM FIRE LADDERS

ALUMINUM LADDER COMPANY

WORTHINGTON, PENNSYLVANIA





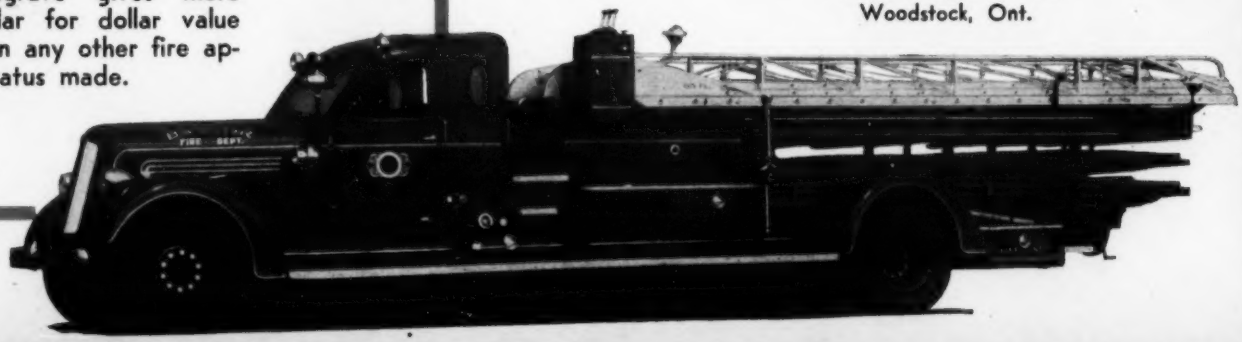
DEPENDABLE

It is not how much or how little you pay for fire apparatus but it is what you get for your money. The dependability and mechanical perfection of Seagrave Apparatus has been amply demonstrated over a period of sixty-eight years. This is sixty-eight years of the proof that Seagrave is always the best buy in fire protection for any city . . . that Seagrave gives more dollar for dollar value than any other fire apparatus made.

Seagrave

THE GREATEST NAME IN FIRE APPARATUS

THE SEAGRAVE CORPORATION
COLUMBUS, OHIO
Bickle - Seagrave, Ltd.,
Woodstock, Ont.



Kindly mention FIRE ENGINEERING *when writing advertisers*

Smokey Says:

"Look Into the Die Work if You Want Top-Quality Badges"

Look closely, with a magnifying glass, at the die impression of a badge. If the characters, the lettering, and the highlights are clear-cut and sharp you have definite proof that the die making is the work of experts. Blackinton has these skilled craftsmen, - and it pays to purchase insignia made from their dies. Specify Blackinton badges from your equipment dealer.

V. H. Blackinton & CO., INC.
THE OLDEST NAME IN INSIGNIA
ESTABLISHED 1852
ATTLEBORO FALLS, MASSACHUSETTS

It will help if you will mention FIRE ENGINEERING *when writing advertisers*

"ONE WRONG MOVE WOULD HAVE BLOWN US SKY HIGH!"

says **CHIEF EDWARD GALL, Sr.**
Mount Vernon, New York

"10,000 gallons of high octane gasoline had leaked from a nearby storage tank into a street excavation. It had to be pumped out—and we prayed there'd be no sparks . . . one misstep would make a first-class catastrophe.

"The foam generator was immediately hooked up and put into operation. We laid extra foam and hand lines to cover exposures. A blanket of foam was kept over the gasoline while it was being pumped out and repairs were being made to stop the leak. After we were on duty for 48 nerve-wracking hours, the area was declared safe and we were finally able to take a deep breath."

Let's swap Fire Fighting Stories like this one! . . .
What's your favorite? Send it along to us today!

FOR GREATER PROTECTION TO LIFE AND PROPERTY

Hundreds of fire chiefs and thousands of firemen know the dependability of Eureka Fire Hose—dependability that results from these features:

- ★ **The Unique Smooth Interior Filler Ply, for maximum nozzle pressure.**
- ★ **Bomb-Tested Lining, to insure long, dependable life.**
- ★ **Balanced Weave and Controlled Curing, which eliminate excessive writhing and warping.**
- ★ **Formula "X" for positive protection against mildew.**

EUREKA FIRE HOSE

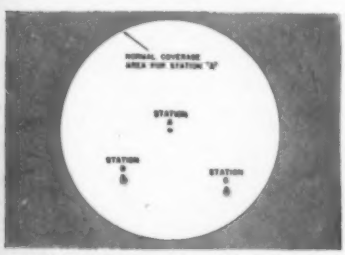
Division of United States Rubber Company

195 Hudson Street • • • New York 13, N. Y.

Mobile communication on adjacent channels is a practical possibility

—with the RCA CARFONE

• With conventional 2-way radio operating on adjacent channels, you get interference over wide areas. A is a typical station, B and C are adjacent-channel stations.



• With CARFONE systems there is practically no interference.

• For the first time, utilization of those in-between channels in the 152-162 Mc. band becomes a practical possibility—*as proved by actual tests!*

The RCA CARFONE does it with "31-Circuit" Selectivity. Here, 31-tuned circuits build a "canyon-shaped" selectivity curve that clears the path for desired signals—and shuts out the bothersome interference that formerly made adjacent-channel operation impractical.

Result: mobile communication systems sharing areas with adjacent channel stations can reclaim territory formerly impossible to operate in with reliability (see diagrams in lower corner).

In many other ways, too, CARFONE design anticipates the needs of mobile communication equipment in the future. For instance, the CARFONE provides higher sensitivity with Grounded-Grid input. It has lower spurious response and lower spurious emission. It has extended frequency range. It is smaller in size. And it is extremely easy to install.

• • •

For detailed information on the RCA CARFONE . . . write Dept. 120D, RCA Engineering Products, Camden, N. J.

COMMUNICATION SECTION
RADIO CORPORATION of AMERICA
ENGINEERING PRODUCTS DEPARTMENT, CAMDEN, N.J.
In Canada: RCA VICTOR Company Limited, Montreal

THE WEST CHICAGO PRESS

WEST CHICAGO, ILLINOIS, JANUARY 27, 1949

FIREMEN WIN HIGH PRAISE FOR GIESE FIRE WORK

Potential "Blow" Brought Under Control Friday

An insurance underwriter and an insurance adjuster, one of them on the spot with the first firemen, have accorded highest praise to the West Chicago volunteer fire department for the way the firemen subdued a potentially calamitous fire in the Arthur E. Giese home at 340 Clayton last Friday evening.

The fire, which started and made great headway in the house when all the occupants were absent, was a potential "blow"; that is, it had created and enclosed in the house great quantities of gasses which could at any minute hove blown the house apart and some of the surrounding homes with it. Added to the gas created by the fire was natural gas, released when the gas meter in the basement melted in the intense heat.

The fire department, called to the scene shortly after 10 P.M., extinguished all flames in a few minutes with its fog equipment. It did so with no water damage. In a fire as dramatic as this was, that may seem like a trifling aside, but it was one of the points which drew highest praise from the insurance men.

There was a gaping hole in the living room, where the fire had burned through from the basement, but a dining room table three feet away did not have a drop of water on it when firemen inspected the room after putting out the flames.

The fire was discovered by Mrs. Giese as she returned from a movie about 10 o'clock. She attempted to enter the house but was driven from the front door by the terrific heat.

She turned in the alarm from a neighbor's home, and the firemen were soon at the scene.

They discovered the source of the fire, which started near the coal bin, burned away a partition into the bin, and then climbed upward and spread out across the basement joists.

Intense heat radiating from the walls led firemen to believe fire was burning inside the partitions, but they found none, all flames having been extinguished in the first few minutes with the two fog nozzles. The building had fire stops.

Adjusters fix the damage figure at around $5,000, most of it the direct cause of heat, rather than direct fire, and none of it from water.

Insurance underwriter ***** ***** on the scene with initial firemen, called the department's work "the best he had ever seen in a small city, both for equipment and the knowledge of how to handle it" as displayed by the firemen. He said when he arrived at the fire he was ready to call it a tota l loss.

Excerpt from a newspaper account of a recent fire in W. Chicago, Illinois. Not a single word has been changed.

HERE'S A STORY of how a John Bean High-Pressure Fog Fire Fighter brought a potential "blow" under control, extinguishing all the flames within a few minutes, *and did so with no water damage!*

Many similar authentic stories of Bean Fire Fighter performance are to be found in our files. Complete details will be furnished on request.

The West Chicago Fire Department's pride and joy—this Bean High-Pressure Fog Fire Fighter—carries its own water supply, and has two guns of 30 gallons each with 850 lbs. pressure at the pump. Delivered complete with accessories.

BEAN *Original* **HIGH-PRESSURE FOG FIRE FIGHTER**

CAN BE MOUNTED ON MOST STANDARD TRUCK CHASSIS

FOOD MACHINERY AND CHEMICAL CORPORATION

JOHN BEAN DIVISION, DEPT. 126, LANSING 4, MICH. • JOHN BEAN DIVISION (WESTERN), 409 JULIAN ST., SAN JOSE, CALIF.

BUILDERS OF BEAN HIGH-PRESSURE PUMPS FOR OVER 60 YEARS

Times have changed . . .

Americus Six, Built by James Smith, 1851. Photo, Courtesy Museum of the City of New York.

. . . so have fire-fighting methods where UNOX Penetrant is used

UNOX Penetrant—developed to make water penetrate—is one of the new methods of fire-fighting being used today.

UNOX Penetrant helps water to *penetrate* dense burning materials, putting out the fire quickly and positively—with less smoke and radiated heat, less water damage and less overhaul. "Wet water" made with UNOX Penetrant is outstanding in its action for fire-fighting. Rapid extinguishment of Class A fires is obtained—with a minimum amount of water and less water damage.

In test after test, in the laboratory, and on regular runs, UNOX Brand Penetrant has demonstrated its effectiveness in helping water extinguish fires faster.

If you wish samples of UNOX Penetrant or information concerning use with your equipment please write to Dept. **FE-4.**

UNOX
TRADE-MARK

CARBIDE and CARBON CHEMICALS CORPORATION

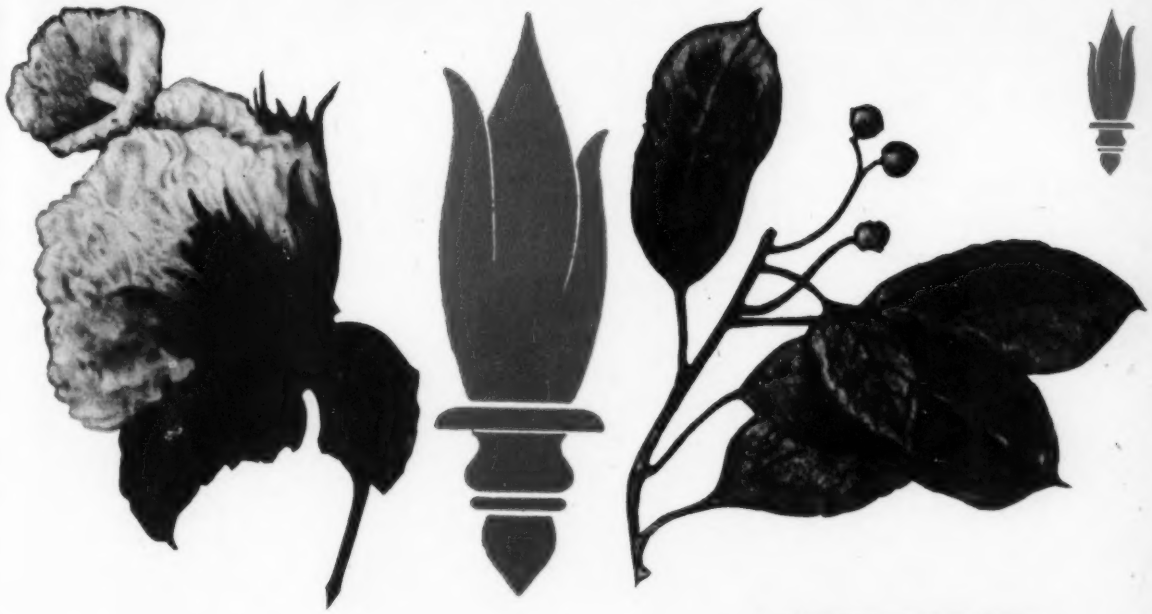
Unit of Union Carbide and Carbon Corporation

30 E. 42nd St., New York 17, N. Y. UCC Offices in Principal Cities

In Canada: Carbide and Carbon Chemicals, Limited, Toronto

PENETRANT GIVES FIRE-FIGHTING A THIRD DIMENSION—*WATER THAT PENETRATES*

"Unox" is a trade-mark of C&CCC.—Copyright, 1948, by C&CCC.



A FLOWER + TREE SAP MAKES FIRE HOSE

COTTON, the wool around the seeds of the blossom, and **LATEX**, the sap of the rubber tree, are these raw materials. Each is processed through about a dozen steps of development before becoming hose. All this processing combined with experienced design, commonly known as "**KNOW HOW**" produces what is known as a **NATURAL** hose for a given service; i.e., well balanced life, strength, flexibility, weight and performance. This is why it is very wise to obtain fire hose by "**BRANDS**," of long market standing, rather than writing specifications or adopting those of others. These latter most generally stress special characteristics as thought to be important, but which really spoil the product. When you are buying a watch, would you specify either the hair spring, balance wheel, main spring or all of them??? Well, fire hose is very much the same proposition but not appreciated.

•KEYSTONE•

FULL CABLED FULL TWILL WOVEN GENUINE WAX AND PARA GUM TREATED HEAVY DUTY FIRE HOSE

FABRIC FIRE HOSE CO.

1869 SANDY HOOK, CONN. **1949**

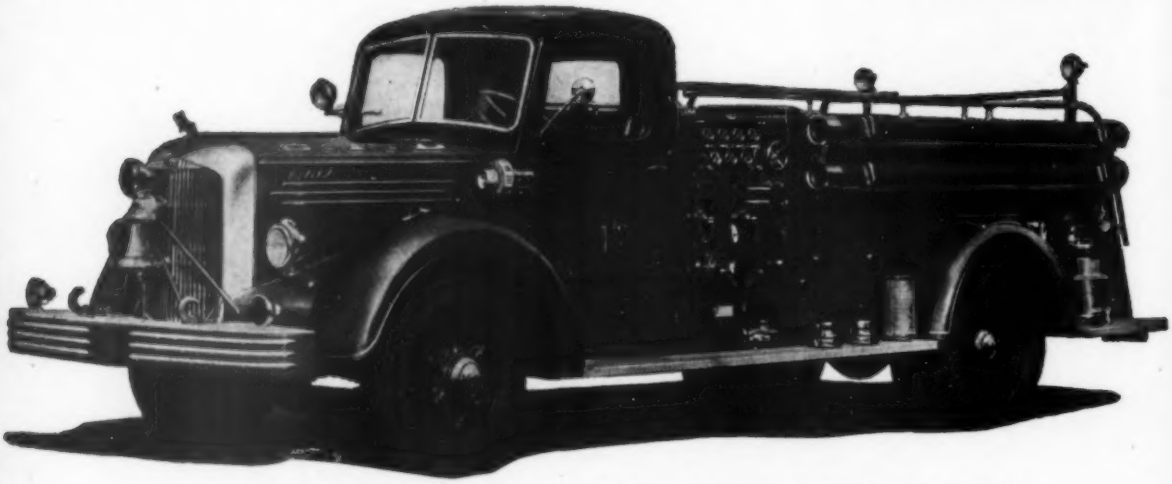
Please mention FIRE ENGINEERING *when writing advertisers*

GUARDING THE LIVES OF MILLIONS FROM COAST TO COAST

MARS SIGNAL LIGHTS and MARS TYPE "G" SIRENS

ARE INSTALLED ON THE

CHICAGO FIRE DEPT'S THIRTY-TWO NEW PUMPERS



ONE OF CHICAGO'S THIRTY-TWO NEW PUMPERS WITH MARS LIGHT AND SIREN

THE CHICAGO FIRE DEPT. WAS AMONG THE FIRST TO USE MARS SIGNAL LIGHTS

SINCE THE FIRST MARS LIGHT WAS INSTALLED IN 1934, THE CHICAGO FIRE DEPARTMENT HAS OBTAINED 425 MARS SIGNAL LIGHTS.

TODAY MARS SIGNAL LIGHTS ARE IN USE ON ALL OF THE CHICAGO FIRE DEPT'S APPARATUS AND OFFICERS' CARS.

SMALL TOWN AS WELL AS LARGE CITY FIRE DEPT'S USE MARS

MORE THAN 12,000 IN USE FROM COAST TO COAST

Mars Light Is Fully Guaranteed for Five Years

Mars Has Never Failed to Back Up This Guarantee and Never Will

WHEREVER SAFETY OF FIREMEN, APPARATUS AND THE PUBLIC IS THE FOREMOST CONSIDERATION YOU'LL FIND FIRE DEPARTMENTS USING AMERICA'S FOREMOST WARNING SIGNAL LIGHT

IMMEDIATE DELIVERY

MARS SIGNAL LIGHT CO. 5737 W. DIVISION ST. CHICAGO, ILL.

HAVE YOU SEEN THE NEW

MARS TYPE "G" SIREN?

Ask Us About It

We shall appreciate your mentioning FIRE ENGINEERING *when writing advertisers*

NATIONAL
NATIONAL B
NATIONAL AER-O-FOAM LIQUID
NATIONAL 99 FOAM CHEMICAL
NATIONAL 2 IN 1
CHEMICAL A INNER CHAMBER
CHEMICAL B OUTER CHAMBER
NATIONAL FOMON CHEMICAL CHARGE
NATIONAL 99
EVERY PROTECTION NEED
EVERY ONE FIRE TESTED
Whether it is a complete foam system for a refinery, a refill can of AER-O-FOAM liquid or a foam charge for a hand extinguisher . . . National can supply your every need. Each and every product has been "Fire-Tested" and performance-proved in fighting flammable liquid fires.
National "Fire-Tested" Products include all types of chemical and mechanical foam charges, foam nozzles, foam chambers, foam makers, pump and pressure proportioners, overhead spray deflectors, marine foam systems and many types of foam generators. In addition, National Foam equipment includes complete foam fire fighting units ready for service anytime, anywhere—trucks and trailers specially fitted for fighting flammable liquid fires.
National Foam System makes and engineers the complete foam fire fighting systems to assure your industrial plants and municipalities of safe, sure protection. Call on our engineers for "Fire-Tested" equipment . . . write for complete catalog.
NATIONAL FOAM SYSTEM, INC.
Headquarters for Foam Fire Protection
Packard Building, Philadelphia 2, Pa.

GET VALUABLE EXTRA FOOTAGE WITH

COMPACT, FLEXIBLE BWH FIRE HOSE

It folds evenly, lies flat, and takes up the least possible space on the truck. That's why you can carry longer lengths of BWH Fire Hose, to get at those troublesome out-of-the-way spots at stubborn fires.

BWH Fire Hose is extra sturdy, too. The staunch, closely-woven cotton jacket that protects its rugged tube was originated by BWH technologists. Expert engineering gives great strength and durability without cumbersome weight. So it's no wonder BWH Hose is hailed by fire fighters everywhere for the outstanding service it gives.

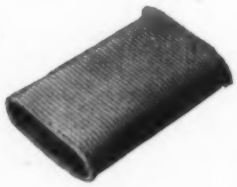
BWH Fire Hose is available through the General Detroit Corporation and its subsidiary, the General Pacific Corporation, who maintain branches and warehouses in almost every section of the United States. Look for the "General" trademark in the classified section of your phone book — call your local "General" representative to give you expert advice on all municipal fire fighting problems.

BWH
"BOSTON FIRE JACKET" HOSE
Double Jacket

Carefully pressure tested and inspected. Really rugged, yet surprisingly flexible. For cities that want the best.

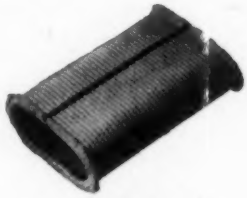
BWH
"PARAMOUNT" HOSE
Double Jacket

Famous for its flexibility, long life, dependable ruggedness. Made of fine materials.



BWH
"MILO" HOSE
Single Jacket

Big value for communities where light service hose answers. Durable, long lasting, easy to handle.



BWH
"UNDERWRITERS'" HOSE
Single or Double Jacket

Made in strict accordance with the National Board of Fire Underwriters' specifications. Labeled or unlabeled.

Distributors of famous

BOSTON WOVEN HOSE AND RUBBER CO.

Municipal Fire Hose

THE GENERAL DETROIT CORP.

DETROIT 7, MICHIGAN

NEW YORK • ATLANTA • CHICAGO • DALLAS

Subsidiary:

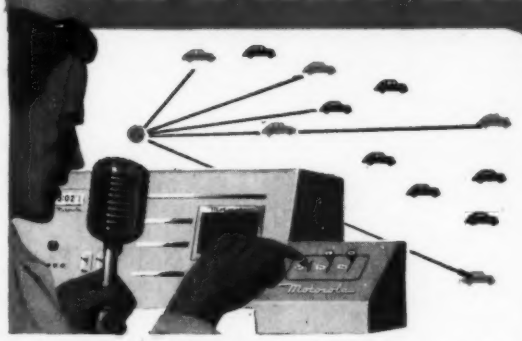
THE GENERAL PACIFIC CORP.

LOS ANGELES • SAN FRANCISCO • SEATTLE

2 NEW REASONS

why more FIRE CHIEFS than ever before are choosing . . .

Motorola FM 2-WAY RADIO



1 Motorola "QUIK-CALL" SELECTIVE SIGNALLING EQUIPMENT!

Now . . . your cars hear only *your* calls with Motorola's revolutionary new "QUIK-CALL" selective signalling equipment! At the press of a button you can control and direct calls to your fleet — or to any one car in your fleet! Your drivers answer only the calls coded and directed to them. Noisy standby periods need no longer be tolerated. Interference from diathermy and "SKIP" is completely locked out during standby — false-call squelch opening is completely eliminated. Motorola's "QUIK-CALL" is capable of calling your fleet (single-key system), or of selectively calling up to 1,350 individual units (24-key system) with the precision and speed of adding machine operation.

2 Motorola I.D.C. INSTANTANEOUS DEVIATION CONTROL

Eliminates the severe nuisance interference that may develop from overmodulation, or channel "spill-over," by means of a new slope limiting device, an integral part of all currently manufactured Motorola transmitters. I.D.C., applied universally, will make adjacent channel occupancy practicable. I.D.C. is an absolute solution — not a conventional compressor amplifier or clipper-limiter compromise. Motorola's I.D.C. requires no "attack time," but controls carrier excursions instantly. I.D.C. is available in kit form for all existing Motorola transmitters — mobile and base station. Install I.D.C. in your transmitters — urge your channel neighbors to reciprocate — you'll enjoy a new peak of communication efficiency.

Motorola EQUIPMENT BOUGHT TODAY WILL BE YEARS AHEAD FOR YEARS TO COME!

The Motorola equipment you buy today has been planned, developed and tested in the largest FM 2-way mobile radio laboratory in the world! More important, Motorola equipment has been proved to outlast and outperform all others by actual use in the field. Motorola's mature engineering and precision craftsmanship is your guarantee of satisfaction.

GET COMPLETE DETAILS OF THESE TWO *Motorola* DEVELOPMENTS

MAIL THIS COUPON TODAY

Dept. F.E. April

Motorola Inc. Communications Div.
4545 Augusta Blvd., Chicago 51, Illinois

Please send me additional information on Motorola I.D.C.

NAME_____

COMPANY_____

POSITION_____

ADDRESS_____

CITY_____ STATE_____

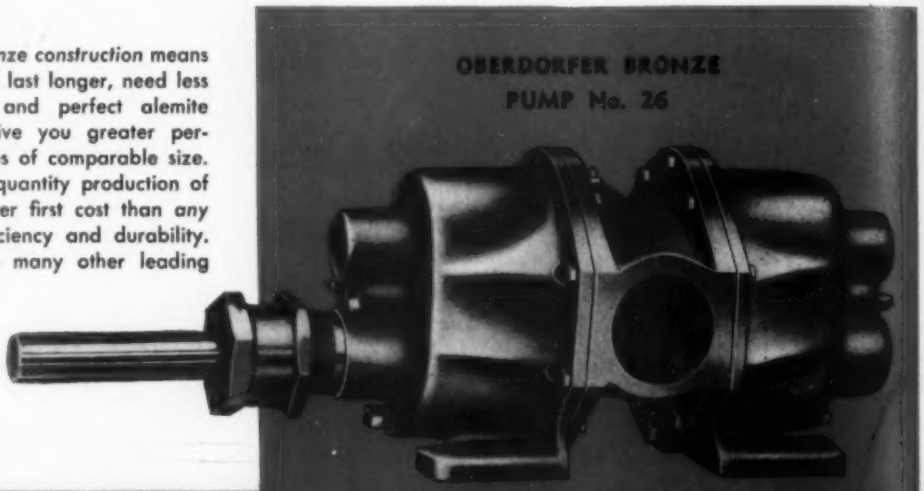
Leading fire departments standardize on

OBERDORFER

Booster Pumps

for efficiency, dependability and economy

Corrosion-resistant, *all-bronze construction* means Oberdorfer Booster Pumps last longer, need less service. Efficient design and perfect alemite lubrication mean they give you greater performance than most pumps of comparable size. Oberdorfer's tremendous quantity production of bronze pumps means lower first cost than *any other* make of equal efficiency and durability. Your department, like so many other leading departments, can save money and do a better job with Oberdorfer Booster Pumps. Write for complete details and name of your distributor.



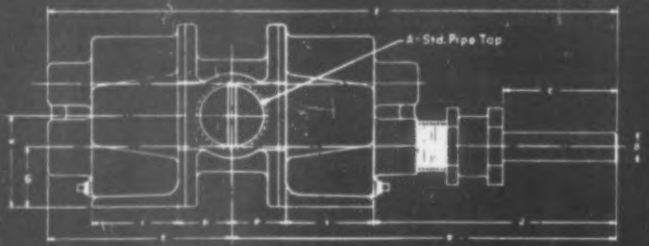
SPECIFICATIONS – Oberdorfer Bronze Fire Pump No. 26

DIMENSIONS

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
2	1	4	13 1/16	6 15/64	19 3/8	2 1/8	3 1/4	2 21/32	8 3/32	6	6 1/2	7/16	2 1/2	1 5/8	1 53/64

PERFORMANCE DATA

Pump Shaft RPM	Pounds Pressure	Hose Length and Size	Dry Suction Lift in Feet	Vol. in Gal. Per Minute
1600	120	500'—1½"	15'	150



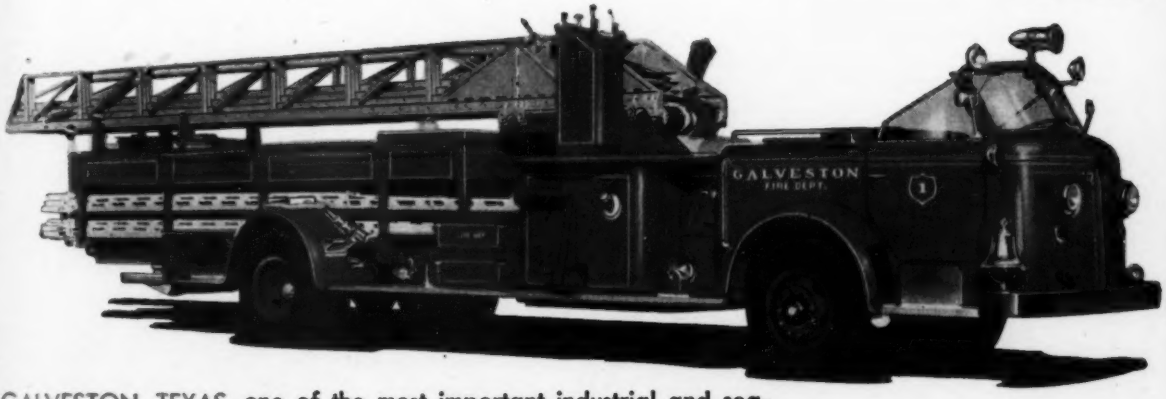
LIST PRICE $172.50

For complete specifications of this and other Oberdorfer Fire Pumps and name of distributor, write—

Fire Pump Division OBERDORFER FOUNDRIES, INC. Syracuse 1, N. Y.

PROTECTED by AMERICAN-LAFRANCE

Photo courtesy of GALVESTON C of C



GALVESTON, TEXAS, one of the most important industrial and seaport cities in North America is modernizing its fire fighting equipment with the addition of seven new AMERICAN LaFRANCE Cab-Ahead-of-Engine pumpers, and two 4-wheel aerial ladder trucks equipped with 100 foot all steel aerial ladders. Dependable fire protection is assured with this new American LaFrance equipment operated by the capable and efficient GALVESTON Fire Department.

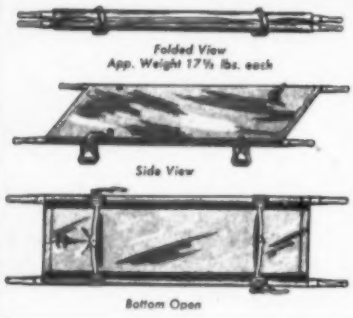
Write for free literature on equipment to protect your city or community.

AMERICAN-LAFRANCE-FOAMITE CORPORATION
ELMIRA, NEW YORK, U. S. A.
LAFRANCE FIRE ENGINE AND FOAMITE LIMITED
TORONTO 9, ONTARIO, CANADA

WAR SURPLUS! FIRE EQUIPMENT

UNUSED MATERIAL AT UNBELIEVABLE VALUES

Clean Stock — Excellent Condition — Made By Top Name Manufacturers



COLLAPSABLE CANVAS LITTERS

ALUMINUM POLES — WOOD HANDLES — FOLDS COMPACTLY

Heavy Duty Canvas. Metal Snap-Open Arms and Sturdy Metal Legs. Opens 22" x 90" x 5". Wt. 17 lbs. @ $5.50

4 for $20.00

SNAP-ON LITTER STRAPS—Detachable & Adjustable - 50c PER PAIR

RESCUE WIRE-BASKET LITTERS

Galvanized Metal Steel Tubing and Wire Covering. Sturdy and Light. Size 23" x 85" x 8". Wt. 20 lbs. @ $10.00

3 for $25.00

TWO-WAY BRASS LEADER LINE SIAMESE

2½" NST FEMALE TO PAIR 1½" MALES

Quick-Acting. Quarter Turn Valves.

1½" AVAILABLE IN NST OR PCT @ $12.00

2½" NST x 1½" x 1½" IPT - @ $10.00

BRASS SHUT-OFF WITH PLAYPIPE

Ball Type Shut-Off with Tip. Playpipe Has Flat Leather, Swing Handles and Ladder Hook. Polished Tips Furnished Any Size. @ $19.50

For 2½" NST Hose

5" HAND SIREN

High Velocity Siren Run by 60 to 1 Crank. Ball Bearings and Free Rolling Gears. Has True Siren Scream Audible 5 Miles. Adaptable to Power. COMPLETE WITH CASE @ $11.50

1½" FOAM NOZZLE

1½" Mechanical Foam Nozzle with Pick-Up Tube. Brass Connections & Mixing Chamber with Light Alloy & Insulated Flex Pipe. Produces 500 GPM Foam Using Only 50 GPM Water.

Complete Set @ $11.50

NST, IPT, or PCT

TELEPHONE SETS

Portable, Self-Contained Signal Corps Sets. Converse for Miles on 2 Standard Flashlight Batteries. Leather Cases with Bell Ringing Cranks. All Sets Reconditioned, Used, Guaranteed Perfect.

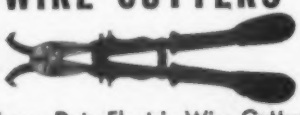
2 SETS COMPLETE, NEW BATTERIES @ $22.50

2-STRAND TELEPHONE WIRE @ $15.00 per Half Mile

FOAM LIQUID — 5 Gal. Cans @ $5.00

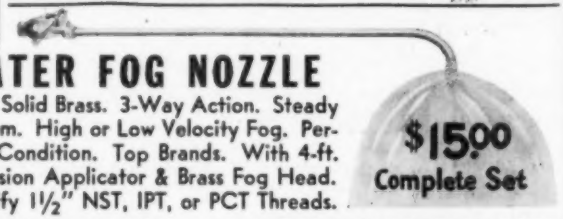
ASBESTOS FIRE SUITS @ $11.50

WIRE CUTTERS



Heavy Duty Electric Wire Cutters, 18" Insulated to Withstand 20,000 Volts. Removable Search Hooks. @ $4.50

WATER FOG NOZZLE



1½" Solid Brass. 3-Way Action. Steady Stream. High or Low Velocity Fog. Perfect Condition. Top Brands. With 4-ft. Extension Applicator & Brass Fog Head. Specify 1½" NST, IPT, or PCT Threads.

$15.00 Complete Set

1½" Nozzles Alone @ $12.50 — Available with 10' Applicator @ $17.00

2½" NST Brass Fog Nozzles Alone @ $17.50 — With 12' Applicator @ $22.50

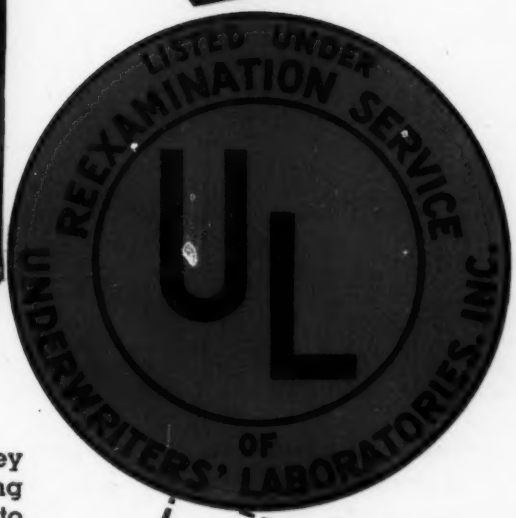
Fire Hose and Many Other Items at Tremendous Savings — Write for New Catalog

HALPRIN SUPPLY CO. 837 East 4th Place Los Angeles 13, Calif.

FOR FALL REFINISHING

DEMAND *Fire Resistant* SAFE T BOWL

THIS LABEL AND SEAL IS YOUR PROTECTION



Live-wire, safety-conscious bowling alley operators, long cognizant of the mounting casualty lists, property losses running into millions and the hideous tragedy emanating from alley fires can instantly appreciate the advantages of this new product. In the interest of the sport, protect your bowlers, protect yourself. When the time comes for refinishing, PLAY SAFE WITH SAFE T BOWL!

America's Best Coatings, Inc.
1632 N. Twelfth St., Milwaukee, Wisc
I am interested in SAFE T BOWL coating and thinner. Please send details—
Name
Address
City
State

America's Best Coatings, Inc.
1632 N. TWELFTH STREET, MILWAUKEE, WISCONSIN

WHY CITIES PREFER GAMEWELL
SIMPLICITY OF OPERATION

When she observed a fire in a nearby factory in Dorchester, Massachusetts, eight year old Thomasina De Beneditto knew exactly what to do -- *So she pulled the box and called the Fire Department.* She shows, in the illustration, how she operated the box.

The method of operating

GAMEWELL
FIRE ALARM BOXES

is simple,

easily understood even by children,

and

contributes to speed in sending alarms

GAMEWELL
FIRE ALARM BOXES

GAMEWELL fire alarm boxes, promptly used when fire occurs, will save property -- and may save human lives.

We invite your inquiry.

THE GAMEWELL COMPANY
NEWTON UPPER FALLS 64, MASSACHUSETTS
IN CANADA NORTHERN ELECTRIC COMPANY LTD. MONTREAL

We shall appreciate your mentioning FIRE ENGINEERING *when writing advertisers*

FIRE ENGINEERING

APRIL, 1949 VOL. 102, NO. 4

With the Editor

Can We Improve Attack Strategy?

At present rates of destruction, fire will cost this nation over $8 billions in property losses, and will take the lives of over 100,000 persons, while bringing injuries to many times that number, in the next decade.

Hundreds of fire fighters alive and well today will be listed among the casualties of the next ten years' battle with consuming fire.

Those who like to juggle statistics can have a Roman Holiday figuring what these losses are going to mean to the nation's postwar economic and social existence. The fire service, however, is too busy right now figuring how to control, extinguish and prevent fires to join in any statistical orgy. To the fire service, these losses will be interpreted and recorded in hours of gruelling struggle against a foe that knows no quarter and gives none. They will be gauged by critical action, during which time an error in strategy, a mistake in judgment, a failure of a plan of movement, or of a pumper or any other weapon of the fire fighter engaged in the operations, can have costly and perhaps tragic repercussions.

If these losses of billions of dollars worth of property and thousands of lives are to be curbed, and curtailed in the years ahead, it will be largely because the fire service has been equipped and trained to the requisite degree of perfection to accomplish it. This is a point that municipal government officials, and taxpayers, might well ponder.

Let us emphasize that "equipped and trained," for unless the fire service is given the necessary fire control facilities, and knows how to use them, there can be no downward trend in the fire loss figures; rather the opposite is possible.

We stress this point for several reasons. The first, and most important, is that the tempo of fire is continually accelerating. This tempo has kept pace with, and is in a measure, the handmaiden of our nation's fast paced industrial tempo.

The fire service had to revise its thinking, its fire control strategy and its mechanical fire extinguishing facilities when gasoline and other volatiles entered the fire picture years ago. It has had to further revise its tactics and armament as new and deadly hazards were developed and marketed. Nor has it reached the end of that metamorphosis.

And this is another point to be weighed by those officials who are responsible for equipping and training the fire service to meet these conditions and hazards, for the fact should be plain that yesterday's methods and strategy of fire control and extinguishment simply won't do today.

The fire service may be the nation's first line of defense against fire, but it can never win the battle against fire solely by defensive action. It has got to carry the fight to the fire, to prevent it by any and all means where possible; but when fire occurs, to attack with utmost dispatch and with all the necessary facilities to annihilate it in the shortest possible time.

In order to do this, the fire service must first of all revise its thinking, its viewpoints of the entire cycle of fire propagation and control. In a day when known, definite improvements in extinguishing agents and equipment have been tested, approved, and adopted by many progressive fire departments and are available to all, it is inviting catastrophe to stick to outworn, outmoded methods and facilities.

The science of fire protection has brought to the fire service besides such fast, accurate communications, such improvements as: water fog and fog nozzles; foam and fog foam and foam appliances; wet water and proportioners for using effectively. It has brought improved extinguishing agents. It has armed the services with respiratory protective equipment; it has provided water carriers and pumping units; portable power and lighting plants; metal ladders and other specialized apparatus and equipment to lead the attack on fire.

These modern age improvements are here. They have been tried and their worth demonstrated. They offer the fire service the best answer to the problem of how to keep pace with the speeding tempo of fire today.

Though excellent as these modern innovations are in their particular fields of application, they cannot hope to prove as effective in the attack on fire working alone as where they are used in combination.

For further elaboration of this thought, attention is called to the article, appearing elsewhere in this issue, entitled "Coordinated Attack Urged to Improve Fire Control Strategy." It's worth careful reading!

Fred Shepperd

Coordinated Attack Urged To Improve Fire Control Strategy

Respiratory Protection; Small Hose; Water Carriers; Fog and Wet Water; and Portable Lighting, in Combination Cut the "Fire Cycle"

By ROI B. WOOLLEY

Author's Note: **This study has been long in the making. Beginning with the general adaptation of water fog, particularly as applied in the initial stages of fire attack, the author has sought to relate its use and effectiveness to the application of other kindred fire control improvements, and finally, the cumulative effect of the coordinated attack upon what he calls the fire cycle—e.g.: the period between birth and final extinguishment of a fire.**

The opinions and beliefs expressed herein are not necessarily those of the author; this study is not the work of any single authority, nor is it based on snap judgment. It attempts to convey the observations of and conclusions of leading fire chiefs and fire protection engineers who view with considerable alarm the increasing hazards and complexities of America's fire control problem, and who seek to arm, equip and train the nation's fire service to better meet the challenge of this problem.

The following review deals with only one phase of the fire control task—that of the strategy of attack from the moment the fire forces leave their quarters until the fire has been killed. The factor of communications was covered in the October, 1948, number of this journal. Other elements of the problem will be dealt with in subsequent issues.

In the following analysis it is assumed that no automatic extinguishing means, such as automatic sprinklers, carbon dioxide systems, etc., are provided, or that they are inoperative for some reason or other.

THE task of controlling our costly fire losses is admittedly one for the nation's fire protection forces. Public and private cooperation will help, but upon the shoulders of the fire service rests the burden of responsibility for our fire safety.

This being true, it follows there should be proper evaluation of the nation's fire protection facilities in the light of this responsibility, measured against existing and probable future fire hazards and the fire extinguishing problems they impose on the fire service.

The editors of FIRE ENGINEERING, and numerous fire protection engineers concerned with the problem, have been engaged in making this evaluation—of weighing not only the material and mechanical facilities employed, or that should be employed, by the fire service, but the procedures and techniques of utilizing them.

A major conclusion reached is that expressed in the preceding editorial in this issue. Defensive tactics of fire control will not do in this chemical and atomic age. The entire science of fire control and extinguishment calls for more coordinated and swifter attack on fire in its earliest stages following discovery.

Regardless of the cause of the fire, or of failure to prevent it by whatever means, when fire does originate, the new technique of attack—attack—attack, not only requires utilization of the latest up-to-the-minute fire extinguishment equipment and apparatus, but their coordinated employment on the best possible offensive basis.

In the words of the modern firefighter: "we've got to get on top of the fire, knock it out, with least loss of time and effort, and least punishment to personnel."

This analytical study attempts to develop this line of thought in the light of the resources and facilities presently available to the fire service, with emphasis on what is meant by "coordinated attack" i.e.: using not one or two of the latest weapons of the fire fighter, but all of them.

Those weapons may be listed as (1) modern masks and respiratory breathing equipment; (2) small hose lines and improved portable fire extinguishers; (3) water carriers, including booster tanks and pumps; (4) water-fog, foam and fog foam with suitable appliances; (5) wetting agents, or treated water; and (6) portable utility light and power equipment.

It should be repeated—this list by no means includes all the essentials to good fire fighting. Individually or collectively these assets are useless without quick, accurate notification of, and alerting of, the fire forces; some of them cannot be used without adequate pumping or ladder equipment; nor are included essential forcible entry, rescue, overhaul and salvage facilities. Their application to the possible revised strategy and technique of fire control are important, but must be reserved for later study.

Solvent Fires Epitomize the Chemical Era

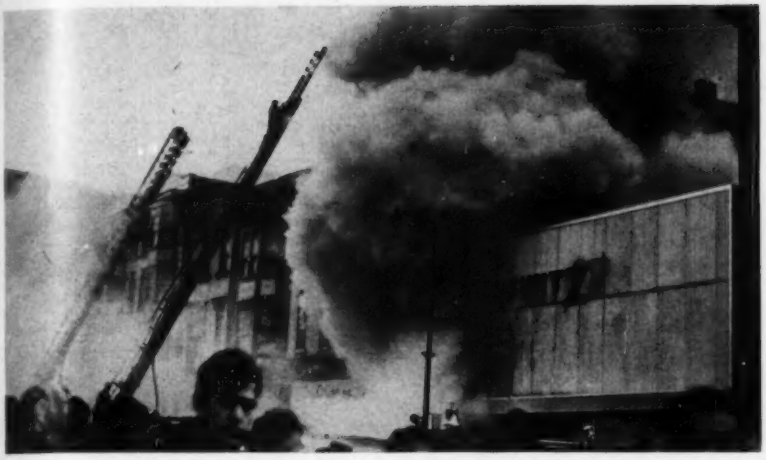
Fast attack won't always prevent eruptions such as this, which destroyed a structure when drums of gasoline exploded. Quick action in subduing many solvent fires in their infancy has forestalled flareups like this.

The Fire Cycle

Every fire fought by firemen has its history and its cycle of progress, from ignition stage to final extinguishment.

That history-cycle is progressive and, in the main, is one of action, some of it split-second timing. There is nothing static about controlling fire, once it has been born.

The action-cycle of a fire from birth to death follows a certain pattern, at least from the viewpoint of the fire protection engineer. The fire itself may vary in proportion from insignificance to conflagration, but regardless of its proportions, origin, propagation or rate of progression, the cycle or pattern of controlling it includes these phases: (1) the period between discovery and the transmittal of the alarm or alerting of the fire forces; (2) the period between receipt of alarm by the fire service and



Modern Mercantile Fires Call for New Attack Technique

Today's streamlined architecture presents the fire fighter with new problems of attack. Unless the fire forces can get in quickly and kill the fire in its infancy this may be the result. Here firemen were forced to fight from the exterior to control a tough fire that did $400,000 damage to a furniture store, because an explosion spread the fire before they were on the ground.

arrival of firemen at the scene of the fire, and finally (3) the period between arrival on the fire ground and final extinguishment of the fire itself.*

Each of these phases of the cycle is one of positive action, of attack and, to more or less degree, of timing. Without attempting to weigh the importance of one stage against another, it may safely be said that any improvement in subduing and killing an existing fire falls within one or more of these phases of the cycle.

Of course, discovery of fire can be hastened, just as fire itself may be prevented, by the application of certain foresight, but once fire has incubated, its length of life and its destructiveness are largely measured by what happens between the time it is first noticed and duly reported to the fire control forces. What they do following notification of the fire, and how they do it writes the history-cycle of that fire.

If this is sound reasoning, any improvement in shortening the period from birth to death of a fire must be sought in one or all of these phases of the cycle. It should not require very profound search to determine which phase offers greatest opportunity for that improvement.

Where to Shorten the Fire Cycle

Unquestionably, improvement can be made in reducing the time between detection of a fire and notification of the fire forces. Delay in getting requisite action following discovery of a fire has been responsible for lengthening the fire cycle, for many costly conflagrations and much loss of life. In many cases, delayed alarm has called two strikes on fire fighters before they ever received notification of a fire, let alone reached the scene of action. However, important as prompt discovery and notification is in the fire cycle, it is not pertinent to this particular study, which is intended to deal with the elements of the physical and mechanical attack on fire, rather than communications.

There is not much opportunity for cutting corners and saving precious seconds between the time the alarm is transmitted, by whatever means, and the moment it reaches the fire forces. Modern science has given America the finest alarm transmission facilities to be found anywhere. Some day radio, radar or other phase of electronics may further split the already split second timing of the country's fire alarm transmission, but today there is little room for saving of time in this phase of fire control.

Much the same thing can be said of the response of the fire forces. Seconds may and doubtless will be saved by the fire service in getting its forces out of quarters and off to action. Communication signal speeds are being increased; voice notification is saving some fraction of seconds and, better still, giving the responding fire fighters advance notice and warning of what they may be up against in their attack upon the particular fire to which they are responding. Indeed this forearming by forewarning has much to do with response, and with the subsequent attack strategy to be taken by the fire forces, once on the scene.

It is obvious that the better informed the responding fire fighters are as to the location, kind and extent of the fire they are about to face and attack, the easier for them to predetermine their attack strategy. With two-way radio to keep mobile units informed of action once at grips with the fire, the extinguishing operations can be much more successful.

The most serious handicap in the response of fire forces is present day traffic congestion. Under these traffic drawbacks, there is little room for saving seconds in the movement of apparatus. On the contrary, conditions are steadily growing worse, and the future is anything but bright. There is little immediate hope of furthering fire control methods in this element of the fire cycle.

There remains then, the final phase, the actual operations of attacking and subduing the fire on its own ground. And it is in this part of the attack procedure that most students of fire control believe will be found the greatest opportunity for improvement necessary, as we have said, to bring fire control into line with the rapidly multiplying hazards of this day and age.

"Locate—Confine—Extinguish"

An old and time-tested axiom in the fire service goes something like this: "first, locate your fire; then, confine it; and then extinguish it." That is not a bad definition of attack.

Stated in other terms, the more quickly the fire fighter knows what is burning, where it is burning, and how to get to it, the more quickly and efficiently he can control and extinguish the fire, granted he has the necessary facilities of tools, and the knowledge of how to use them.

Most experienced firemen will agree that a common source of delay in getting to work on a fire, particularly where

Explosion and Fire Blitz Air-Reduction Plant

One problem of attacking fire in this day of unusual and deadly hazards is to know when to attack—and when to leave fire alone. Here are shown burning acetylene gas cylinders after a violent explosion destroyed an air-reduction plant near Los Angeles suburb.

*Reference to the period of incubation, origin, and cause has been purposely omitted. This study deals solely with the control and extinguishment of existing fire. Fire prevention, detection and notification are subjects for further studies.

there is a heavy smoke condition, has been the difficulty in locating the heart of the fire. True, smoke is an indication of fire, but the old adage that "where there is smoke there is fire" is not always accurate; the smoke may be a considerable distance removed from the seat of the fire which causes it.

Any analysis of fire attack procedure, therefore, prompts the question: is there

Water Often Does More Damage Than the Fire

Rapid attack, using masks, small lines, water fog, and wet water, in combination as described in this study, might prevent some situations similar to this. It looks here as though the fireman is a little late with his salvage cover!

anything that can be done to improve this factor of the attack phase—locating the fire so as to quickly get to work on it? The answer is definitely yes!

Pre-Fire Information Helps

There are a number of things that can be done to simplify this part of the attack pattern or technique. One is to know beforehand as much as possible about the premises involved in the fire —buildings and contents. There is no longer any justification for company officers, inspectors, or whoever may be in the front line of attack on any fire in any area, not knowing something about the property and life hazards of the occupancy. The name-sign over the door, or the contents of the show window are not to be too implicitly relied upon to provide this necessary pre-attack information. Housing and building shortages and uncertain occupancies being what they are make every building fire a potential destroyer of life and property.

It may be asked with some justification, granted you know all about the building and its contents, and are familiar with the hazards and all the obstacles to good fire control operation, how are you going to get to the fire when the structure may be heavily charged with smoke, and possibly gases? Men can only take so much punishment —and it is well said that "no fire is worth a fireman's life."

The answer to that one is already so well known that it should require no elaboration here. The solution, of course, is suitable breathing equipment, properly worn and used. And this introduces the first of our details of the attack phase in the extinguishment cycle which offers hope of improvement.

Good Respiratory Equipment Helps Locate the Fire

The regrettable part of it is that although the advantages of good respiratory equipment are known and generally admitted, only a small part of the nation's fire service has considered, let alone experimented with, masks and breathing equipment as a necessary adjunct in the important initial detail of attack. An expert in this field of firemanship, who should know, claims that you can number on the fingers of one hand the fire departments that carry regulation approved gas masks as "standard equipment" for all fire fighters and where the men use such equipment consistently in fire fighting operations.

Those chiefs who arm their men with the most up-to-date respiratory protection and require its use in *attack* as well as *rescue operations* will insist that this is one of the most important improvements they may have made in the entire strategy of attack. Those who have had opportunity to really live with such equipment will agree that it is one of the most vital steps to be taken by a fire department in combating today's increasing number of chemical and other complex and hazardous fires, which are products of this particular era.

There should be more masks of all standard types on hand in every fire department. They should be used more often than they are. And users should be better trained in wearing and using such equipment. As long as respiratory equipment continues to be located only on rescue or other mobile units which may be far removed from the fire and which must be "special called" in order to make them available where they are needed, there definitely will be room for improvement in this segment of fire control operations.

It should be admitted that a large number of our fires are of small proportions (over 50% of fires in a number of large cities are extinguished without a single engine stream, while less than 10% of those requiring engine streams are extinguished with no more than one line). It is no doubt true that smoke conditions encountered in fighting these fires are hardly of such nature as to require use of masks in the initial attack stages. But this does not preclude the advisability of having this equipment readily available for all first due units, at all times.

If, therefore, because attack conditions do not require or warrant the use of masks or breathing equipment and smoke and gases present no obstacles to quickly locating the fire and getting to work on it, where else in the attack-phase is there room for possible improvement?

To find the answer to this question the next segment of the attack strategy must be scrutinized and analyzed.

Granted that the fire can be found (more quickly, of course with masks if there are severe conditions present), the next step after locating the fire is to confine it and extinguish it according to the old formula. To this we would like to add: extinguish it with least property damage.

Aside from the obstacles of smoke and gases, what else has slowed up firemen in their getting to grips with fire? Isn't one thing the method of getting the extinguishing equipment and extinguishing agents, whatever they may be, to the seat of the fire itself, so as to most effectively apply them on the fire? If this were not true there would be no wisdom in lightening up our equipment, making it more maneuverable, and using booster and 1½-inch hose for initial attack instead of the heavier types.

Size-up by whoever is in command of first-arriving forces should quickly indicate the kind of extinguishing agent, and equipment best suited for its application, for the initial attack on any fire.

Small Lines Speed Attack

In the past, and in many instances in the present, particularly where small hose was not available, precious seconds have been lost because of the restrictions imposed by the need of using the heavy 2½-inch hose in the early attack-stages of fire fighting.

Notwithstanding the fact that some fire departments do employ 1½-inch hose, their method of stowing it, and of

Bucket Brigade Feeds Booster Tanks at Large Fire

Here a bucket brigade attempts to replenish the booster tank of a township unit in fighting a fire which destroyed a lumberyard and half of the village with $100,000 loss. Water supply source is too shallow for pumper to take suction.

stretching-in and using it in conjunction with larger hose employing special fittings and connections precludes their saving all the time they might, were more efficient loads and combinations used. There are a number of good hose loads designed for fast operations; that which should be followed depends in large measure upon local factors and operational limitations; the decision of which hose load to employ must be left to the local department. However, it is suggested that before any one procedure is adopted, experiments be conducted, trying out all known approved loads and lays. It is surprising how many progressive fire departments have made no serious effort to take fullest advantage of the greater maneuverability and quicker striking power afforded by the fullest possible use of small hose.

Who was it said that the first three minutes of any fire determine its size and extent? Whether three minutes or five minutes, the propagation period of a fire, when it is getting under way, represents the critical period in the fire cycle. It is here that efforts must be centered to save precious seconds. It is here, therefore, that lighter, more maneuverable hose may be most advantageously employed in conjunction with proper respiratory equipment.

The combination of breathing aids and light hose enables the fewest possible men to bring the greatest possible fire killing power into action with the least physical exertion, and with greatest saving in time. The attack-phase may be further shortened when fog and wet water are included in this offensive combination.

It is claimed by authorities who have conducted the experiments that even with most improved heavier hose loads on scientifically designed hose carriers, with all-purpose nozzles attached ready for action, and with everything geared for a quick lay, whether from hydrant to fire, or reverse, under normal conditions an average fire crew can get two lines of 1½-inch hose into operation on a fire in the time it formerly took to get a single 2½-inch line to work.

However, regardless of whether any fire is showing, or whether there is or is not *evidence* of any fire, the smaller hose should always be backed up by the larger.

To the advocates of large hose only who refuse to use the lighter, handier, more mobile types, we suggest that they make a few simple comparisons themselves, using their own apparatus, fittings and nozzles.

Stage identical simulated fires, not simultaneous incidents, but at different intervals, using the same crews in each case. In one incident respond to, stretch, and attack the simulated fire just as has always been done, using the heavier hose, nozzles and fittings and old hose load. In the other, try out the lighter hose, using any one of the several approved hose loads.

Don't attempt to break any records or stage a "contest"; be fair with yourself and your men. Gauge every detail, not merely the time element. Then relate the more modern technique, to the present daily attack operations of your department.

Perhaps the most conclusive evidence in support of the greater efficiency and effectiveness of small line attack is that no record is extant of any fire department which, once having thoroughly experimented with 1½-inch and booster hose, has ever given them up and reverted to the exclusive use of 2½-inch hose. It is further enlightening to know that within the past year, two of the largest and best fire departments in the nation have accepted 1½-hose as "regular equipment." Neither has discarded the 2½-inch, nor will they, but they have found definite improvement in their attack phase by the addition of the lighter, smaller hose, especially where it is equipped with fog nozzles. Neither contemplates reducing the size and capacity of its pumpers; on the contrary consideration is now being given to increasing the capacity of booster tanks on these apparatus and of adding storage containers for liquid foam, and proportioners for its use with water fog and possibly later on, wet water.

Good Lighting Essential for Pushing the Attack—and Rescue

Here is the brilliantly lighted front of the Niles Hospital, Hartford, Conn., during the Christmas fire of 1945, in which 15 died. Effective illumination of fireground and premises aids size-up, laddering, stretching in and other operations—including overhaul and salvage. It also reduces injury to firemen.

Our study of possible improvements in attack strategy would not be complete if we did not consider the use of booster equipment, and water carriers in today's fire fighting.

Taking Water to the Fire

It is not by chance that booster tanks are being installed in increasing numbers and in larger sizes on apparatus. It is to be expected that small town, village, township and rural departments, where for the most part, water (or other agents) for extinguishment, must be taken to the fire and where static water supplies are usually located some distance from the fire, will adopt large booster tanks and large supplies of booster and 1½-inch hose.

If minutes and seconds are to be saved by any group of fire fighters in the attack phase of fire extinguishment it is in this field where the water must be taken to the fire. Factors such as weight of apparatus, amount of equipment to be carried in addition to extinguishing agents and so on, count for much more with the small town and rural fire department, than with their big city brothers. Notwithstanding this fact, not a few professional fire officers have received the surprise of their lives when they learned just how much fire some of these smaller volunteer departments are knocking out with little water!

One other factor to be considered in the attack phase in connection with the use of small lines, and booster tanks and water carriers is this: the beforementioned small departments make a virtue out of necessity of killing fires with extinguishing agents which they must take to the fire. This is a quite different situation from that of the large municipal department which has made a virtue out of prolific application of water simply because almost any quantity of it was on tap at all times. What has perhaps been overlooked by these firemen (but not by the insurance underwriters who reckon the losses) is that perhaps their very abundance of water supplies has, by encouraging reliance on the bigger hose, resulted in heavier water losses, which as every fireman knows are frequently greater than loss by fire.

The introduction of efficient respiratory protective equipment, used in conjunction with the lighter hose, equipped with fog nozzles, has been made still more effective for the rapid, simple, safe control and extinguishment of fire, by the improvements made in booster tanks and water carriers.

These improvements have taken many forms: larger tanks, compartmentization; fittings for not only 1-inch leader lines, but also 1½-inch hose; connections for rapid filling and, where necessary, dumping of tanks. The latest innovation to become regular equipment in some booster units is the in-line proportioner, whereby foam solution or a wetting agent may be introduced into the water line. Thus, it is now unnecessary to pre-mix the foam or wetting agent in the water supply tank. The result is greater economy of time, labor and extinguishing agents.

Contemplation of the foregoing improvements in this phase of fire control has inspired a number of progressive fire chiefs to experiment with different applications of these attributes, singly

and in combination, using pumpers, ladder trucks, quads, and hose and water carriers, in diversified hook-ups and tandem operations. Out of this has evolved an entirely new concept of first-line fire attack.

This new technique, possible even if only a single pumper or combination unit is available, is most effective when two or more combination units respond.

The procedure, under normal conditions where the fire is inside a structure, calls for the first-due unit equipped with booster tank and pump, to locate directly in front of, or very near the scene of the fire and well within operational reach of booster lines. If hydrant or other source of supply is available, then 2½-inch line or lines, are laid to back up the booster lines. Once located, one or more lines of hose, booster or larger size, depending upon the nature of the fire, booster tank and hose limitations, available manpower and so on, are taken into the building. Masks, which have been at the "ready" are donned, if it is obvious the occasion demands their use.

Water can be in the hose by the time the lines are within range of the fire and all the nozzlemen have to do is open up their pipes. Meanwhile, the supply line can be connected to the tank intake for replenishment or the suction intake of the fire pump, as desired, and charged, being used either to support the attacking booster lines or to provide the supply for an additional, heavier line or lines, operating off the discharge side of the pumper.

There are any number of variations of this method of making the first-in unit the focal instrument of attack—all of them good and all an improvement over the old orthodox methods of attack. Of course, the strategy should always consider the possibility of a fire getting away from the attack force; therefore, supporting lines of suitable size should be laid in, as good judgment dictates.

Using Water Carriers and Pumpers in Massed Attack

This fire, near Milwaukee, Wis., in which 11 valuable horses were burned, demonstrates the need of coordinated attack, where the water must be taken to the fire. Here pumpers and tankers are being used in combination.

Water Fog and Fog Foam Further Shorten the Fire Cycle

The foregoing techniques would hardly be effective without one other modern facility—water fog. High pressure or low velocity, water fog has made it possible for water, with or without a wetting agent, to go further as an extinguishing medium, put out more fire per gallon, save greater water loss, and enable the fire fighter to wage his attack on the fire with less time and effort and less physical punishment to himself, than anything that has heretofore been employed by the fire service.

Just for the record, it might be well to quote here operational data pertinent to the use of water fog and different size hose and fog nozzles:

Hose Size	Type Nozzle	Stream or Fog	Nozzle Pressure p.s.i.	Discharge g.p.m.
1"	gun	Fog or solid	300	13.1
1"	gun	Fog or[1] solid	600	17.7
1½"	perl.	Fog[2]	100	51.5
1½"	imp.	Fog[3]	100	16
2½"	perl.	Fog[4]	100	117
2½"	imp.	Fog[5]	100	165

Note: The length of fire fighting operations, when using any of the above combinations can be computed by dividing the quantity of water available (booster tank or other carrier) by the nozzle discharge in gallons per minute, the answer being in minutes.

Key:
imp.=improving stream type of nozzle
gun=high pressure gun type of nozzle
perl.=peripheral type of nozzle
[1]Nozzle opening 14/64
[2]Nozzle opening ½
[3]Nozzle with perforated button
[4]These figures from "Fire Service Hydraulics"
[5]These figures from "Fire Service Hydraulics"

The above table is adapted from data published in "Characteristics of Water Spray Nozzles" published by N.F.P.U., plus the figures for 1½-inch lines taken from "Fire Service Hydraulics."

Wet Water Cuts the Fire Cycle—and Losses

A further improvement in attack on fire is wet water. A good, reliable wetting agent intelligently used, preferably with water fog, is tantamount to multiplying the water carrying capacity of booster or other supply tank many times over.

Although wet water applied to fire department use is essentially a post-war development, it has been tested in actual operations on the fire ground as well as in the laboratory and it has passed the experimental stage.

As an agent of attack and extinguish-

(*Continued on page 284*)

Night Clubs Make Trouble for Fire Fighters

Fires like this which destroyed Mercur's Music Bar, Pittsburgh, Pa., night spot, punish firemen. If, by means of fast attack, using proper breathing equipment, "treated" water can be brought to bear on the burning furnishings (usually over-stuffed and combustible) heavy loss can be prevented. Use of plastic furniture and wall coverings present other serious problems.

Fire-Fighting Sheriff

A Survey of Boulder County, Colorado—One of the Nation's Most Rugged Areas—Where the Sheriff Handles Rural Fire Calls

By WILLIAM BENDER, Jr.

BY a statute passed in 1903, the State of Colorado officially placed Sheriffs in the position of fire wardens for their respective counties. It was a fairly unique move, considering the usual establishments for rural fire fighting throughout the nation; and since the statute is merely a statement of responsibility, it has led to equally unique solutions in each of Colorado's 63 counties.

Courtesy Boulder Camera

Key Personnel in Boulder County Fire Fighting. L. to R.: Chief Johnson, Asst. Chief Angelo Nuoci and Chief Joe W. Greeno of the Longmont Department; Driver Ed Saunders, Sheriff Everson and County Commissioner Elmer Autry

Up in Boulder county which ranks seventh in the state for population, the solution is geared to a friendly, highly effective form of co-operation among Sheriff's deputies, ranchers and the professional firemen retained by the county's two major cities.

The city fire department in the county seat (also named "Boulder") not only mans, maintains and garages the county apparatus, but uses it when city emergencies demand. A similar arrangement exists in Longmont, the second major city in the county. On technical aspects of fire protection equipment and methods, Chief Emil Johnson of Boulder invariably acts as unofficial adviser to Sheriff Arthur Everson. Johnson, for example, was the one to draw up the initial specifications for the present county equipment.

In order to understand the problems and accomplishments of fire control in Boulder county, you must first understand the terrain—the most important single factor governing rural fire prevention planning.

Only slightly smaller than all Rhode Island, Boulder county is divided equally by the foothills of the Rocky Mountains. The foothill line extends almost exactly north and south, a rocky bulwark with peaks up to 8,000 feet. The land east of this abrupt dividing line is rolling prairie; everything west, mountainous. The western border of the county stretches some thirty miles along the 14,000-foot glacier-cradling peaks of the Continental Divide.

Most of this mountain area is wild, unsettled and often heavily wooded. The trees themselves vary with the altitude. Four well-defined belts can be found: The first, and lowest, belt is composed mainly of jack-pine, pinion and cottonwood; next, lodgepole pine and aspen; fir trees and Engleman Spruce occupy the third and fourth elevations. Beyond the Engleman Spruce belt are the barren meadows above timberline. Fifty per cent of all mountain fires occur in the lodgepole pine region. This is also the region which supports fire best of all. The ground is invariably covered with fallen timber and decomposing vegetation which permits a fire to undermine clear to the mineral soil. Once a fire begins smouldering in this "duff," only arduous physical effort can conquer it. Every foot of the ground must be shovelled, spread out and doused.

Farms take up the eastern half of the county, a region laced with arroyos which are usually hidden from sight until you are right on top of them.

Water runs onto the plains in five major creeks (you don't call them "streams") which are all fed by mountain glaciers. From the north, these are the St. Vrain, Left Hand, Boulder, South Boulder and Coal Creeks. Each of these is tapped for irrigation purposes and this network of creeks, ditches and stock reservoirs forms the only water supply available to combat rural fires. In the Spring of the year the creeks are wide, deep and swift-running, but the water level drops during the other seasons until—in Fall and Winter—it merely trickles down the creeks in a narrow central channel, and disappears entirely from the irrigation ditches.

Even the stock reservoirs dwindle as the year grows longer until they become mere pools in the center of vast mud-caked bowls.

Number One Problem: Water

Once tagged "The Great American Desert," this entire plains area is, by nature, arid. The lack or the probable lack of water is the greatest threat in combatting rural fires. On several occasions Sheriff Everson and his men have seen property destroyed completely be-

Courtesy Boulder Camera

Sheriff Arthur Everson and Chief Emil Johnson with One of Boulder County's Two Identical Fire Trucks

Courtesy Boulder Camera

Chief Johnson Explains Professional Techniques of Hose Handling as Sheriff's Officers Get in a Practice Session

cause the county apparatus had to go too far and take too long to replenish its tank.

A recent blaze in a farm dwelling some ten miles from the county seat is a case in point. The 500 gallons carried by the tank brought the flames well under control; another 200 gallons or so would have finished the job. There was a well on the property, but it had a weak rate of flow. By the time the apparatus could reach the nearest creek, refill and make it back to the scene, the fire had broken out once more with all its original intensity. The deputies started from the very beginning to bring the flames back under control . . . and again the water was exhausted at a critical point. This see-sawing went on three times. By then the ranch house was a total loss.

This factor of water supply, coupled with the nature of the terrain and the frequent occurrence of fast-travelling grass fires, has dictated the selection of pumps for the twin fire trucks operated by the county. Sheriff Everson and Chief Johnson are agreed on the 500 gallon per minute front end pump. For one thing, this allows the apparatus to nose hub-deep into a creek or stock pond while keeping its rear wheels on hard ground. Knowing the terrain, Everson feels that the suction hose off a side pump might never reach deep water; or, if it did, the truck might readily become bogged down in the muddy floor of the characteristically shallow lakes.

But the greatest advantage of the front end pump becomes evident in tackling the all-too-common grass fires that beset the region. By the time the apparatus reaches fires of this type, the deputies are usually faced with a blaze whose "front" can be measured in terms of *miles*.

It would be dangerous and futile to attempt to fight such an extended conflagration from a truck that would become immobilized every time the pump was turned on. As it is, the driver can cruise along the fire line while a deputy sweeps the blazing grass with semi-fog from the 1-inch booster hose mounted on a reel behind the cab.

Since we have mentioned scattered details, perhaps we should connect them up with a closer examination of the water pumping system used on Boulder's rural trucks.

The pump is topped with an automatic governor set to maintain a pressure of from 100-120 pounds. It is able to draft and discharge at the same time, or to discharge while the truck is in motion. In addition to 150 feet of 1-inch booster hose operating off the reel, there is a 2½-inch and a 1½-inch take-off. The 2½-inch is employed only when the pump is drafting from a creek or reservoir

If the situation warants, a siamese coupling may be attached to the 2½-inch take-off to feed an additional pair of 1½-inch lines. Six hundred feet of 1½-inch hose and five hundred of 2½-inch are carried.

While the booster line is capped with a three-position nozzle for straight stream, spray or fog, the truck carries only straight shut-off nozzles for the other hoses.

Distance Also a Major Factor

In a county of some 800 square miles, its very size becomes a definite fire hazard. When a fire is being blown by a stiff prairie wind, every mile and every minute spent reaching it multiplies the job to be done.

Similarly, mountain fires that may be only half a dozen miles away may require an extraordinary drive of twelve or fourteen miles before the apparatus can be driven to the scene. In many instances, the devious mountain roads run six to eight miles in order to span two points separated by a single mile of rimrock or canyon.

However, the sparse settlement of the mountain area confines the Boulder Sheriff's fire-fighting activities fairly well to the plains portion of the county.

Identical pieces of apparatus are garaged in each of the county's two major cities: Longmont and Boulder. The cities themselves are about twenty road miles apart and centrally located as regards the county as a whole. Many fire calls will be within a ten-mile radius of one or the other of the trucks, but some populated regions are 18 or 20 miles from the fire houses.

Certain features Everson has planned or already built into the trucks help overcome this serious problem of distance. Special two-speed rear axles have been installed to give eight forward shifts. The trucks have already topped 75 m.p.h. and will probably do even better.

When the tank is loaded to capacity, each truck has a gross weight of 12,000 pounds. One feature to be introduced as soon as practicable is an adequate, quick-acting method of dumping the tank. There is invariably a plentiful supply of natural water throughout the mountain region . . . if not on the plains . . . and there is no more need for hauling five hundred gallons of water into the high country than there is for carrying the proverbial coals to Newcastle.

Early this year a fire was reported at Rollinsville, a mountain settlement over twenty miles from Boulder. Knowing that a creek ran within fifty yards of the burning building, a deputy opened the drain valve on the tank as the apparatus roared away from the city fire station. When the truck reached Rollinsville some 45 minutes later, the tank still contained many gallons of water whose weight had helped extend the time needed to reach the fire.

But naturally, the factor of distance can never be entirely overcome. Regardless of modern equipment, two-speed axels and . . . later . . . the quick-acting dump, there is no way of shortening the five, ten or twenty-mile runs to the scene of a blaze.

So Sheriff Everson has been concentrating on prompt reporting of fires and accurate place-identification in order to economize on time. Here much has been done, but there is still room for improvement.

The apparatus, as we have said, is garaged by the city fire department. In order to save seconds, farmers and ranchers have been urged recently to direct all fire calls there rather than to the Sheriff's office.

As a matter of co-operation, a city fireman generally acts as driver of the county equipment. The moment a report comes into the fire house, he gets the apparatus rolling. Meanwhile, the fireman who received the call telephones the Sheriff's office and relays the information. Everson or a deputy immediately starts after the truck by car . . . no gentle ride when you're trailing a vehicle that can hit 75 m.p.h.

Fires are located by a seeming haphazard system which has operated with remarkable efficiency. Commonly recognized landmarks are used for orientation:

"A quarter mile north of the old Roberts place."

"On the St. Vrain, two miles east of the foothills road."

Only once has the system gone haywire. On that occasion, "the Johnson place" was on fire. Like every other county, Boulder just had too many Johnsons and the truck picked the wrong one.

All cars with the Sheriff's office are equipped with two-way radio, but the fire truck has none. Once out on the open road, the car picks up visual contact with the truck and then precedes it to the scene of the blaze. If subsequent information from the fire area results in a change of destination or routing, this is immediately put on the air. If, on the other hand, the deputy should reach the destination without finding a fire, he can radio back to Boulder for further instructions.

It is interesting to note in this connection that the department has never been called on a false alarm. There have been times when local ranchers succeeded in extinguishing a blaze before the apparatus arrived, but there has always been a fire when one was reported.

The deputy in the automobile is expected to reach the fire a few minutes ahead of the apparatus. He makes a quick estimate of the blaze, the threat to surrounding buildings, he locates the

water supply and passes on the necessary instructions when the truck arrives.

Whether on the plains or in the mountains, Boulder county officials have learned there is a distinct difference between seeing a fire and reaching the scene. Sometimes a strong wind will dissipate the smoke from a mountain fire so that it cannot be seen at all. The moment the wind pauses, a plume of smoke shoots up and reports come in from all directions. By the time the apparatus sets out, the wind may resume blowing—and the fire apparently disappears. There have been times when the department has spent two and three days tracking down one of these "sleepers." If the situation seems critical, the local commercial air field readily volunteers its personnel and planes to help out in the search.

But generally there is unlimited visibility throughout the region. Burning wood, tar, brush or oil will throw up a smoke plume that can be easily spotted in a radius of eight or ten miles. Yet even when the apparatus is within a mile or so of the hot core of that plume, unexpected geographical quirks may completely and finally prevent a direct approach. A precipitous canyon, arroyo or dry wash may be the blockade that will force a detour up to five or six miles.

Here is one of the strongest reasons for appointing the Sheriff to the county fire-fighting position. Each man in that office spends the major part of the week travelling the length and breadth of the county. Each is acquainted with the immediate condition of roads and trails, and knows the lay of the land as intimately as the palm of his hand. He knows the conditions of all the creeks; the kind and number of fences that might have to be cut to let the apparatus through; the approximate amount of hose that will have to be laid between water source and building.

Nevertheless, there are places where the high plains can be deceptive to anyone not an actual resident. In order to circumvent any unexpected obstacle, ranchers are instructed to post guides around the fire area . . . local men who know where the blaze is and the best way to reach it from the highways.

Sheriff's officers also know the people in the various localities around the county; both those that are reliable and those who will only add to the confusion. Their authority is recognized and the ranchers will quickly accept whatever orders and delegations of responsibility they choose to make upon arrival.

In the case of a building fire, the deputy and fireman driver assigned to the call handle the hose at the very start. This usually allows them to quench the worst of the blaze or to direct action toward preventing the spread of the fire to nearby buildings as the occasion dictates. Furthermore, this practice gives the inevitable crowd a few moments to quiet their vigorous, but often ineffective, efforts. As soon as some degree of composure has returned to the group . . . when they have become spectators instead of participants . . . the deputy selects someone to relieve him. He assigns others to get pikes, chemicals or whatever is needed from the truck. From then on, the deputy keeps roving and directing the work of the volunteers. He does not again take the hose unless it must be moved into a hazardous position. No volunteer is allowed to take any personal risks at fires.

Aid from Ranchers

Ranchers throughout the county are trained by the Sheriff and the city fire Chiefs in the use of all available equipment. The training period is seldom long, but it is a continuing effort that, more likely than not, becomes very technical.

A professional fireman could feel right at home at Grange meetings where a training talk is being given. The question and answer period inevitably brings out technical details of pressure, discharge rates, comparisons of full- and semi-fog, means of approach to different types of fires and the thousand other details about which he himself would be curious.

Each rancher is keenly aware of the hazard from such natural causes as wind and lightning, the ever-present threat of accidental fires and the obvious delays necessitated by the relative size and impassability of the terrain in which he lives. He is inquisitive about every detail of the apparatus for he realizes that his home and livelihood may someday depend on that knowledge.

By reaching the ranchers at their Grange meetings, the Sheriff has an opportunity to pass along current information on handling emergencies. It was at Grange meetings that Everson changed the system of reporting fires so that all calls now go direct to the fire station. Reminders are given to place guides out on the highway as soon as the report is phoned in. Ranchers are urged to take a critical view of their water supply and, if the flow is too distant or too slight, to do something about it so the supply will be closer to their houses, barns and stables.

These lectures at the Grange halls are often supplemented by demonstrations; when they are, the ranchers themselves are given the "feel" of the equipment. While Chiefs Johnson and Greeno and Sheriff Everson point out different handling techniques, the ranchers do the actual work. This familiarization is felt to be the most important part of the demonstration—far better than simply *showing* what can be done.

Whenever a particular fire presents or solves a specific question, word is quickly passed through the county. For example, last summer at a buffalo grass fire, Deputy D. M. Teegarden killed an entire half-mile front of the blaze with a single five gallon knapsack pump. He fought from the burned area and used modified fog to *smother* the fire rather than drench it. In an arid, sprawling land where every gallon of water is precious, information like this for making the maximum use of available water is of utmost value.

Nowadays, although the direction and intensity of the wind may yet be the deciding factor, ungrazed grasslands are usually fought from the burned side. Blazing wheat stubble or sparse grass, on the other hand, is more often worked from the unburned side.

The U. S. Forest Service has also confirmed this method of fighting a grass fire by smothering it. Using modified fog, the fireman can raise the humidity to a point where combustion is impossible. This is a far cry from the technique of drowning the area . . . and a far more economical one.

But there are always new problems to replace those for which solutions have been found. One of the current questions around the Boulder Sheriff's office concerns the use of wetting agent.

In the past the laymen have found that hay- and straw-stack fires are the hardest to extinguish. Even when an unlimited supply of water is available, the fire doggedly burrows deep into the stack where it becomes absolutely impervious to ordinary water unless the stack is virtually demolished.

All such fires have been put out only after deputies and rural volunteers pulled the entire stack apart. Almost every forkfull of the hay gets soured in the process and becomes unfit for livestock. So every hay-stack fire has meant a complete loss for the rancher.

However, a short time ago the office purchased a quantity of wetting agent. Since the shipment arrived, there has been no fire on which to test it. Everson hopes that the chemical, when mixed into the tank, will permit water to penetrate deep into the stack and kill the smouldering fire. The manufacturer guaranteed that much.

But what Everson does not know—and it's a mighty big "but"—is whether cattle will eat the hay once the chemical

(*Continued on page* 309)

Courtesy Boulder Camera

Boulder County's Apparatus Out on a Test Run. The 4" Lines Are Drafting from an Irrigation Ditch Alongside the Road

TENSE DRAMA IN RESCUE OF DRIVER FROM BUTANE FIRE

Coordinated Efforts and Able Direction Save Trapped Victim's Life Against Heavy Odds

A Staff Report

Editor's Note: **Few dramatic fire rescues have received as much nationwide pictorial publicity as the miraculous escape from death by fire of William Cox, 23, of Fresno, Calif. What, unfortunately, was omitted in the meagre press accounts of the life and death drama enacted on the highway of Contra Costa County, was the part played by the fire forces, working in coordination, to save Cox's life.**

FIRE ENGINEERING is privileged to fill in the gaps in the news accounts, through the cooperation of one of those who took a leading part in the drama—Fire Chief Clarence Viera of the Martinez, Calif., Fire Department and Fire Coordinator of Contra Costa County. Appreciation is expressed to Chief Viera and a number of contributors, including Victor Bartley, who forwarded material.

THE dramatic rescue of William Cox, 23-year-old driver of a butane truck and trailer, from almost certain death on March 13, is evidence of what good cooperative and coordinated effort on the part of firemen, police, highway patrol, sheriff and citizens can accomplish when well directed. It is also a fitting testimonial to the efficiency of the Contra Costa County Mutual Aid Program which functioned in the emergency.

Driver Cox, heading west from Kettleman Hills on the Franklin Canyon Highway, shortly after two P. M. with his load of 8,000 gallons of highly flammable isobutane, had as his destination, Richmond, Calif.

A few miles from the community of Rodeo, Cox was forced to swerve his truck and trailer to avoid hitting a car that was making a "U" turn in the middle of the road. In the maneuver, the truck sheared a telephone pole, which fell across the cab, pinning the driver's leg between the door and the left side of the seat, which was jammed into the frame. Cox's foot had the appearance of being moulded into the truck at the time of its construction, it is said. The trailer overturned in the accident and broke a connection on the tank just behind the cab. The remaining portion of the connection began to freeze as the butane content escaped under terrific pressure.

At this time, Fire Chief Manuel Mello of San Pablo, whose car is radio equipped, happened along as he was returning from a visit up county. Seeing the overturned truck and quickly sizing up the situation, he immediately radioed for the State Highway Patrol, which established a road blockade several miles on either side of the scene of the accident. At the same time, anticipating a fire, Chief Mello called for a fire unit from Rodeo, a few miles distant, and another unit from San Pablo.

Hearing the calls on the radio, Fire Chief Clarence Viera (Contra Costa County Fire Coordinator) of Martinez, sped to the scene, six miles west of his city to find frenzied efforts being exerted to safeguard and rescue the trapped driver.

Firemen, using fog nozzles, were directing water on the victim, who was covered with sacks to keep him from being "burned" by the frozen butane, escaping under pressure, while desperate attempts were made to free him from the wreckage.

Knowing the limitations of available water supply, and aware of the hazard of butane, Chief Viera called for tank rigs from Martinez, Pinole, Concord, El Sobrante, Walnut Creek and the Associated Oil Company at Avon, all within twenty miles of the accident. He also summoned another piece of apparatus from Rodeo.

At this time, the thing that was most dreaded occurred—the butane flashed. Just what caused the ignition may never be known as the driver had turned off his ignition, which in turn shuts off the entire lighting system. It is believed, however, that the flash was due to static electricity.

As the butane burst into flame, Firemen George Bodmar, Joe Shepperd and Joe Alameda received burns, as did Chief Mello and Rancher Linus Clayes. None of these injuries, however, was serious.

Faced with the critical problem of protecting Cox against the searing heat of the flaming butane, an asbestos blanket was taken from one of the fire units and placed over the driver, while a hose stream was directed on the tank in the effort to keep the heat down. Water, fog, spray and straight streams were used in combination to drive back the flames and heat from the victim and, at times in this operation, it was necessary to protect the nozzlemen operating near the truck with another curtain of water. Meanwhile, working in iminent danger of serious flareup, Chief Mello of San Pablo and Chief Lloyd Cooper of Rodeo aided by volunteers, struggled to release the pinned driver.

Throughout the entire ordeal, Cox remained conscious, encouraging his rescuers to "take it easy." Only once did his courageous calm falter, and that was when the fire forces ran out of water and the butane flames turned the metal cab into a red hot oven. Then

Blazing Butane Fans the Fiery Breath of Death

William Cox (shown by arrow) pinned in his wrecked tanker tractor cab, peers out from under the protective asbestos blanket thrown over him by firemen.

Photo courtesy Chief Clarence Viera

Death Gets the Cold Shoulder

Some of the 115,000 gallons of water used to keep driver William Cox alive amid blazing butane fumes until power movers could separate the wreckage to free him. Dramatic struggle proved value of radio, ample portable water supplies, boosters, water fog and coordination of mutual aid forces.

Cox pleaded for someone to get a gun and shoot him. "I don't want to go out this way," he begged, as for nearly eight minutes rescuers stood by helpless.

Foreseeing the need of reinforcements, particularly of water supplies, additional calls for aid were going out through Dispatcher Rossi in the Martinez sheriff's office and Chief Viera from his Martinez headquarters. These calls brought tank trucks from ranches in Alhambra County, near Martinez and elsewhere. Two 8,000 gallons tankers came from the Lang Transportation Company in San Pablo. The Santa Fe Railroad brought two tank cars of water and located them as near the fire as possible—about a mile distant. These served to refill tank rigs. All told, approximately 115,000 gallons of water were used to keep the burning tanker and the driver cool.

Meanwhile the driver could only lay across the seat of his cab and watch the efforts of the rescuers and firefighters. During the eternity-long minutes while waiting for water to arrive, fire reached the victim's back and blistered his leg, arm and face.

After many futile attempts to release Cox, calls were sent to nearby ranchers for a bulldozer and other power equipment with which it was hoped the wreckage could be pulled apart. Chief Mello telephoned Bill Faria, a rancher, for a bulldozer. Another call went to the Clayes ranch, which sent a tractor. This, with the diesel unit from Faria, arrived and were put to work.

The diesel was maneuvered close to the wreck, under protective sprays, and attached to the truck by a cable. While firemen made ready to make a quick rush for the victim, the tractor with a mighty wrench was able to pull the truck and twist it from the cab, freeing the driver's leg. Cox was then carefully removed from the still hot wreck and hurried to a hospital in Martinez where his injuries were found to be first and second degree burns, a badly bruised foot and leg. Other than that, he was none the worse for wear.

Having accomplished this major objective, the strenuous rescue exertions gave place to methodical cooling of the butane containers until the fire had burned itself out. In order to speed the burning of the butane fumes, the tank was filled with water. By 3:10 A.M. the fire had burned itself out and the ordeal was over.

William Cox was released from the hospital on March 19 with the firm belief that the fire service had saved his life. Indeed it had!

February Fire Losses

Destruction of property by fire in the United States during February is estimated at $62,424,000, a seasonal increase of 7.8 per cent over losses of $57,926,000 for January this year, it is announced by W. E. Mallalieu, general manager of the National Board of Fire Underwriters.

February's fire losses showed a 12.7 per cent decrease from the losses of $71,521,000 recorded in February last year. The fire losses declined in January, 1949, also, dropping 8.1 per cent from the level of a year ago.

Fire losses for the year to date now total $120,350,000, an average rate of destruction of $2,039,830 a day since January 1.

For the 12 months period ending February 28, the total estimated fire loss is $696,933,000, a decrease of 1.1 per cent from losses of $705,739,000 for the 12-months period ending February 29, 1948.

These estimated fire and lightning losses under fire insurance policies include an allowance for unreported and uninsured losses.

Hits Smoking in Bed

Rep. Charles G. Hall (R-Mansfield) told the Connecticut State Judiciary Committee in March that there ought to be a law to ban smoking in bed in hotels, lodging houses and boarding houses. He said the practice endangered the lives of many persons in adjoining rooms when fire results. He admits, however, that although some sort of regulatory measures are needed, he does not know how such a statute could be enforced.

ROBERT H. COLLINS

New York Volunteers Get the "Blue Light"

Governor Thomas E. Dewey has signed a bill which will give volunteer firemen of New York the right to carry a blue light on their private motor vehicles while engaged in fire duty. Heretofore the car of the volunteer could only be identified by a sticker, or a plate.

Firemen Fend Off Death to Release Trapped Victim

While firemen covered by hose stream struggle to release William Cox from wrecked cab of his butane tanker, officers prepare to pull wreckage apart with power movers.

TWO MAJOR FIRES IN A DAY GIVE OAKLAND FIREMEN A WORKOUT

Furniture Store and Army Base Involved by Consecutive Fires; Many Fire Companies Involved in Operations

A Staff Report*

OAKLAND, CAL., firemen put in a hectic twelve hour period between 9:45 P. M., on the night of March 14 and 10:00 A. M. the 15th. No sooner had they subdued a 4-alarm furniture fire than they were called on to fight a spectacular blaze of conflagration proportions in the huge Oakland Army Base. This latter was characterized by Fire Chief James H. Burke as the most serious and threatening fire in Oakland since the Albers Mill fire in the spring of 1943.

The furniture fire, which gave fire fighters more punishment than the loss figures ($10,000) would indicate, started some time after 9:30 P. M., from defective wiring in an office adjacent to the first floor showrooms of the Mulkey Furniture Company, 605-607 East 12th Street.

A passerby pulled box 3323, Sixth Ave. and E. 12th St. at 9:48 P. M., bringing Chief J. Byrne of the 3rd Battalion and Engines 4, 16 and Ladder 2. At 9:57 Chief Byrne radioed a 4th alarm, which brought Engines 6, 1, 12 and 32, the latter converted to a "water wagon" from a former chemical unit and operating out of Engine 1 quarters, Ladders 6, 1 and 4. Assistant Chief Carl Weber also responded.

The 55 firemen manning 10 pieces of apparatus found the building heavily charged with smoke. Despite this, however, lines were taken into the structure and the fire knocked down in short order.

The companies had only just returned from this workout when they and others went into action on the Army Base blaze. Units that fought the 4-alarmer were as follows: Engines 1, 4, 6 (all 1250 GPM pumpers) Engine 12; H. P. wagon and E 32, 500 GPM water wagon. Ladders 1 (85' aerial), 2 (service), and 4 (65' aerial).

The Oakland Army Base, said to be one of the largest military installations of its kind in the world, is located on the shores of San Francisco Bay, not far from the San Francisco-Oakland Bay Bridge. It is said that most of the shipments destined for Japan and other U. S. outposts leave from here. The installation includes many huge piers, warehouses and shops.

The Base has its own fire department, composed of about 30 Army firemen and five or six pieces of apparatus. Most of the fires on the base are handled by this force, but in an emergency, a multiple-company response can be had from the Oakland municipal department by sounding a city alarm box located within the Base. Oakland fire forces have helped fight several fires on the premises, notably one in June, 1945, somewhat similar to the latest blaze, when the middle section of Warehouse 5 burned with an estimated million dollar loss. A fire on March 5 of this year gutted a portion of the Base's provost marshal's office causing the death of one soldier. There is said to be no evidence of any link between this fire and the blaze of the 15th however.

According to witnesses, the fire flashed at 12:02 A. M. and spread so rapidly that the entire 1009-ft. pier and warehouse were involved before fire forces could get into operation. The origin has not been determined.

The warehouse, which is surpassed in size by Pier 7 in the same waterfront group, was jammed with general supplies, ranging from food to clothing to fuel oil, machinery parts and paint. There was no ammunition present, contrary to reports. The explosions that drove back firemen and service men emanated from the stocks of oil drums, which burst under the heat of the fire.

The drums, piled 1,000 to a stack on the south side of the warehouse, let go with the force of mortar shells and shot hundreds of feet into the air. One flew rocket-like 1,500 feet to cave in an automobile; the lid, spinning like a giant disk, skimmed over the heads of firemen and soldiers and ripped through a wire fence. Fire fighters also were hampered by the dense, oil-fed smoke and the terrific heat generated. Some of the fire apparatus had to be cooled down by water streams to prevent them from burning, and a few Oakland pieces returned from the fray with paint blistered.

Two ships wharfed alongside Pier 4 were damaged before they could get away from the danger area. One, the Army transport Sgt. George D. Keathley, was towed away by two Army fireboats, while crewmen fought the fire that had communicated to the port side of boat deck, and the bridge. The C-2 transport Young America, moored alongside, backed out under its own power, tearing loose mooring lines. Fire burned two Jacobs ladders and blistered paint off the starboard bow and No. 1 hatch cover.

Ed Frenick, California Highway Patrol radio dispatcher, one of the first to sound an alarm, reported the heat could be felt at Bay Bridge Toll plaza nearly three-quarters of a mile distant. Fire was through the roof of the building at 12:05 A. M., he said.

The first alarm from the Base was sounded by a military police guard who was patrolling the eastern end of the giant warehouse.

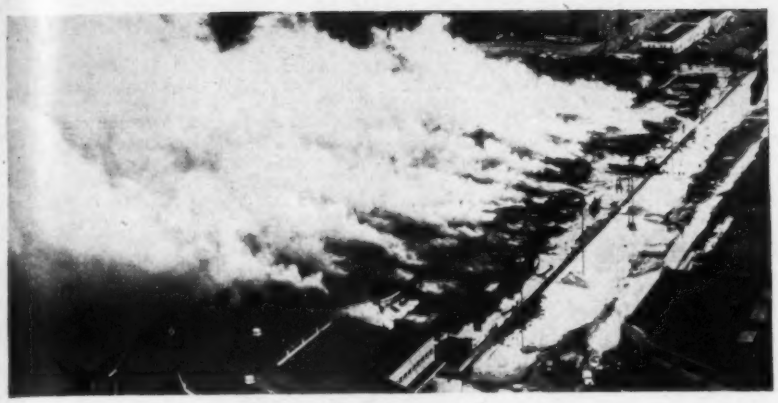
The Oakland Fire alarm office received the alarm from Box 2117 at 12:04 A. M., and the normal response to the Base was made by Engines 3, 9; Ladder 3 and Assistant Chief Weber. Box 2153 was pulled at 12:06; and Engine 2 was dispatched in response. At this same time Chief Weber radioed a fourth alarm, bringing Engines 5, 1; Ladder 1 with the Chiefs of the 3rd and 5th Battalion, and Engine 32.

At 12:14 A. M., a sixth alarm was clocked, calling out Engines 22, 15, 7; Ladder 5 and Chief of the 5th. Fire

*The editors are indebted to Fire Chief James H. Burke and his aides for most of the information from which this report was prepared.

Firemen Stand Fast as Oil Flares in Army Base Fire

Endangered by exploding oil containers, terrific heat and heavy smoke from the blazing 1009-foot pier at Oakland Army Base, firemen hold their positions while some soldiers beat a retreat.



Birdseye View of $1,000,000 Oakland Army Base Pier Fire

Fire fighters from Oakland, Alameda, San Francisco and the Army, Navy and Coast Guard confined this fire which threatened one of nation's large military bases.

Chief Burke, who responds automatically on multiple alarms, arrived and took charge. At 12:30, Engines 4 and 8 were special called to the fire together with Oakland's fireboat "Port of Oakland," which received its first serious workout, under the direction of Battalion Chief E. Hentzell.

In addition to the Oakland forces, Naval installations and Alameda sent equipment and men, and San Francisco dispatched one of its fireboats. The total fire force engaged is said to have included 16 pieces of apparatus from Oakland, four from the Army base, two from the Oakland Naval Supply Depot and two from Alameda Naval Air Station. There were also nine fireboats operated on order by the Port of Embarkation, San Francisco, the Port of Oakland, the Navy and Coast Guard. These craft, in addition to playing heavy streams on the fire, broke up oil slicks on the surface of the water to prevent fire extension.

Both the Army Base and adjoining Naval Supply Center were put on General Quarters, with all personnel standing by for evacuation or last-ditch fire fighting effort. Military personnel aided firemen in moving supplies and pushing back spectators who climbed fences, broke through barricades and climbed buildings in their curiosity. Six Army ambulances and two police ambulances were sent to the fire together with two Navy light trucks, to light the area.

More than 100 motor cars were moved from the danger zone, and 50 Army families left their quarters east of the burning pier. Fork-lift trucks, operated by soldiers, were effective in moving merchandise out of the path of the fire. Two box cars were also pushed to safety.

The walls of the warehouse caved in shortly after the fire started but the embers continued to require overhauling for hours later.

Only two minor casualties were reported by the fire fighters. They were Clifford Risch, Oakland Engine 8, smoke inhalation, and William Bidleman, of the crew of the San Francisco fireboat, cut hand.

Fire fighting operations were mainly confined to use of heavy streams, operated from wagon guns, aerial ladder pipes and portable turrets. Numerous hands lines were used to cover exposures.

Chronology of alarms and response, re-locations and equipment from Oakland was as follows:

Box 2117, 12:04 A.M.—Engs. 3-9; Ladder 3, Chiefs 2 (Asst. Chief Weber), Chief of Department.

Box 2153, 12:06 A.M.—Eng. 2.

4th alarm Box 2117, 12:06 A.M.—Engs 5-1, 32; Ladder 1.

6th alarm Box 2117, 12:14 A.M.—Engs 22-15-7; Ladders 4-5; Chiefs 3-5-6.

Special call 12:30 A.M.—Engs. 4-8.

Change location:
On 4th alarm: Engs. 7/22, 22/9, 15/1.
On 6th alarm: Engs. 8/5, 19/8, 4/1.
Ladders relocated: 2/1, 6/2, 10/15.

About 12:30 A.M. further re-locations were: Engs. 10/5, 16/15, 6/1, 13/4; Ladders, 18/13, 14/16, 7/6.

Oakland units in operation: 8-1250; 1-1,000 and 1-750 GPM. pumpers; 4 hose wagons; 4 ladder trucks (3 aerial and one service.)

New Long Beach Pumpers Pass Tests

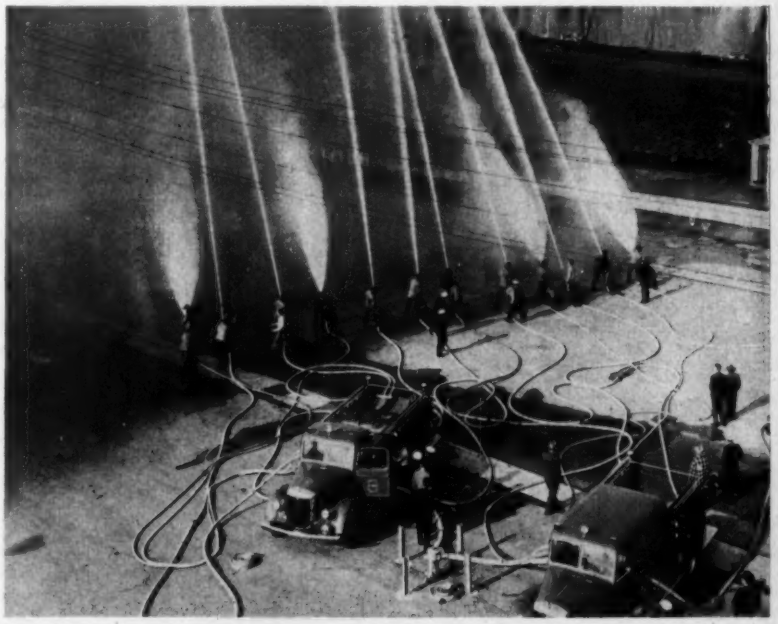
In February the Long Beach Fire Department completed acceptance tests on two new 1,250-GPM pumpers which have been added as part of the department's improvement program. Two similar units, both six-man cabs, are on order. In the trials the pumpers substantially exceeded rated capacities.

All of the city's latest pumpers will be equipped with separate four-stage pumps for high pressures, the auxiliary high pressure pumps being operated by take-offs from the transmissions, independent of the main pump. The smaller pumps will deliver 150 GPM at 150 PSI, and 50 GPM at 600 PSI, which, according to Fire Chief Frank S. Sandeman, is exceptionally good pressure for fog concentration.

Long Beach standardizes on full-crew cab apparatus (the one pumper with two-man cab in the illustration serves with a double-company and the crew rides the hose wagon). These pumpers will carry 1,600 ft. of 2½-in. hose in two hose beds with 800 feet on each side. On each side of the apparatus there is a compartment for ½-in. hose equipped with fog nozzles. Two 100-ft. lines siamese into a 2½-in. fitting, with shut-offs for each line. This provides four 100-ft. 1½-in. lines equipped with fog nozzles which Chief Sandeman reports they have used for 20 years.

The pumpers shown in the picture are each taking suction from a double four-way hydrant on a 12-in. main through a 4-in. soft suction. Static pressure on hydrant was 80 lbs. and operating pressure 38 lbs. The picture was taken from an elevation of 65 ft.

Each of the eight straight streams shown are equipped with 1-in. tips; the spray streams are from adjustable fog nozzles. In later tests, both pumpers were operated singly with four lines into a 2¼-in. monitor gun with engine pressure at 175 PSI, nozzle pressure 100 PSI, with four 100-ft. lines. Both pumpers are equipped with a 4-in. Chicksan swivel on each side and 10 ft. of 4-in. soft suction on each side, carried connected, for quick hook-ups with a minimum of maneuvering for position. Two 5-in. hard suctions are also carried on each pumper for drafting.



Testing New Pumpers at Long Beach, Calif.

Each pumper is equipped with a 200-gal. copper booster tank. All Long Beach pumpers are fitted with booster tanks and 200 feet of booster hose on reels in front of the rear step.

Chief Sandeman reports all of his 16 engine companies and three ladder companies will be equipped with 2-way radio by the end of 1949. All squads, chiefs' cars and fire ambulances, which the department operate, are now equipped with 2-way radio.

SIX DIE IN QUICK DESTRUCTION OF 77 YEAR OLD RIPON HOTEL

Building Almost Fully Involved by Fire Upon Arrival of Fire Department

SIX persons, four men and two women, lost their lives in the total destruction by fire of the 77-year-old Grand View Hotel, in Ripon, Wis., early in the morning of Tuesday, January 1, 1949. The two 60-year-old women and a 72-year-old retired farmer who lost their lives were residents, the others, transient guests of the historic, old brick-faced, "quick-burner." In addition to 42 guests quartered on the second and third floors, there were several hotel employee residents, including Mrs. Mayme Kuhn, proprietor and her son, Ed. both of whom managed to escape alive.

Origin of the fire has been established; it appeared to have started in the north section of the third floor, about 1:40 A. M. A hotel maid, Mrs. Helen Lentz, 69, who is said to have roomed in the corner of the building where the fire appeared to have started was first to discover the blaze. Flames and smoke already enveloped the hall when she opened her door. She, with another woman, awakened by Mrs. Lentz's screams, ran down the corridor, ahead of the fire, to cry the alarm. Mrs. Lentz, whose eyesight is failing, attempted to return to her room to get her eye glasses, but was forced back, and carried out of the building by Les Endeward, a bartender, who helped rescue a number of persons.

The guests that escaped managed to either work their way down the smoke-filled stairways, or down the ladders raised by firemen. One man jumped, receiving slight injuries; another descended the front of the building by gripping ledges and sills. It was considered remarkable that there were not more lives lost, considering the headway had by the fire, the combustible construction and contents of the landmark, the limited fire fighting and rescue equipment, and the time of the year.

All of those who perished had rooms on the third (top) floor. The two women and male residents roomed in the front, the other three men were asleep in the northeast wing of the hotel, next to the Masonic Temple.

The first alarm of fire was sounded by Harvey Luther, employe of a condensery. This was at 1:45 and it brought the full fire force of the city, commanded by Fire Chief William Burroughs.

From the outset there was then little hope of saving the structure. The third floor was involved and flames were working their way down the stairway to the second and first floors.

Photo Courtesy Ripon Commonwealth

Searching Icy Ruins of Ripon Hotel for Victims

Fire Chief William Burroughs, Ripon Fire Department, leads searchers into ruins of still smoldering wreckage. All victims were not found until nearly a week after fire.

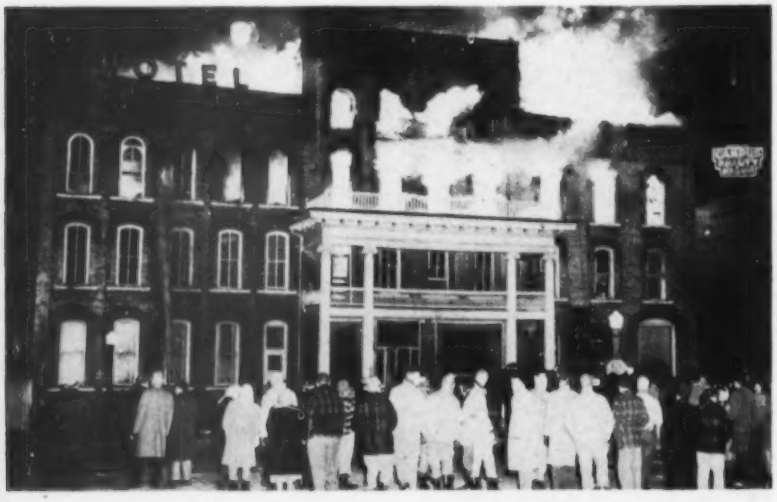


Photo Courtesy Ripon Commonwealth

Historic Ripon Hotel Is Charnel House for Six

All the usual elements that make for the usual fatal hotel fire, delayed discovery and alarm, fast spread, limited exits, confusion, were present at the destruction of this 77-year-old Wisconsin landmark.

Firemen made an effort to work onto the second floor but were driven back from all interior rescue work by the smoke, heat and gases. Doors, which no doubt had been left open by fleeing guests, helped accelerate the blaze. After attempts made by fire fighters to operate hose lines inside the structure proved futile, fire fighting was limited to outside operations. Fortunately, snow-covered roofs in the neighborhood provided protection against the flying embers, borne on the wind after the hotel roof burned through. Firemen, however, kept a close check on the adjoining Masonic Temple, which survived the exposure. One crew endeavored to keep the west side of the Temple, and east side of the wing of the hotel wet down.

Fire forces from Berlin, Oshkosh, Princeton and Fond du Lac responded over the wintry roads to aid local fire fighters, and they stood by until all danger of the fire spreading had passed.

Accounts of some survivors indicate futile attempts by guests to fight the

(*Continued on page 286*)

TWO DETROIT FIREMEN LOST IN ROUND OF MULTIPLE ALARM FIRES

Five Major Fires Keep Detroit Department Busy During January; Arsonist on the Loose Makes Matters Worse

By Joseph A. Kleefuss

IN January the Detroit Fire Department was called upon to fight five extra-alarm fires including two seconds, a third, a fourth, and one fifth alarm.

The first occurred on January 6th. A citizen telephoned a report of a small fire in a store at Brush and Harper Avenues. The still alarm, at 7:29 P. M., was answered by Engine 17, Ladder 7, and Battalion Chief 4, all first due on Box 6198, Brush and Medbury. The fire necessitated additional help and at 7:34 P. M. Box 6198 was transmitted, bringing the additional first alarm assignment, Engines 13 and 5, Ladder 11 and Rescue Squad 2. A second alarm, recorded at 7:55 P. M., brought Engines 35 and 39 and Ladder 20 and Battalion Chief 3. The fire department's ambulance, a light unit, and Bureau Chiefs also respond on the multiple alarm.

This fire, starting in the basement of a grocery store, threatened for a time to destroy the entire building which included living quarters on the second floor. The fire was confined largely to the basement. The building was not severely damaged but grocery stocks were ruined by heat and heavy smoke.

The second extra-alarm fire came on January 10. At 7:50 P. M., box 6162, St. Antoine and Farnsworth Sts., was pulled for a fire in the two story brick building occupied by the National Laundry Company. According to Fire Chief Ninnian Higby, who directed the fire forces, the fire started at the rear of the second floor from an undetermined cause. Flames were shooting through the roof when the first companies arrived, threatening the surrounding closely-built residential area. As the fire threatened to spread, aided by a stiff wind, several families were evacuated from their homes. Although the fire was quickly controlled, it was nearly five hours before the last company completed overhauling the fire and returned to quarters. Damage to the building and its contents was estimated to total $40,000.

The chronology of alarms and company response follows:

7:50 P. M. Box 6162 (St. Antoine and Farnsworth.) Engines 13, 5, 17. Ladders 20, 7. Chief of Battalion 4, Rescue 2.

7:59 P. M. 2-2: 6162 (second alarm) Engines 6, 23, 12. Ladder 5. Chief of Battalion 3. Rescue 1. Ambulance and Light Unit. Bureau Chiefs.

8:11 P. M. 3-3: 6162 (third alarm) Engines 18, 35. Ladder 3.

The following companies relocated:
Engine 41 to 13
Engine 42 to 17
Ladder 17 to 20
Chief 8 to Chief 4

In addition, the following Engine Companies were placed in service by manning extra rigs located in these stations: Engine 18-X to 18, Engine 28-X to 5, Engine 12-X to 12 and Engine 13-X to 13.

Fatal Store Fire

The third multiple alarm fire involved loss of life when a fire at 12036-64 Dexter Boulevard, a building housing stores on the first floor and apartments above, resulted in the death of two firemen. Four other firemen were hospitalized while several others collapsed but were revived at the scene. As far as loss of life was concerned, this was the most costly fire for the department since six firemen lost their lives and three were injured in the Field Department Store fire in 1918. These firefighters were caught beneath a falling wall.

A passerby telephoned the first notification about 4:45 A. M., January 11, after he noticed smoke pouring from beneath the door of one of the stores.

The Detroit Police Department's Arson Squad tentatively blamed a careless caretaker for permitting hot clinkers to ignite cardboard boxes. The caretaker called the Fire Department, then rushed to the second floor to awaken the tenants. Some 40 persons escaped unharmed, many clad only in night clothing.

The fire, fed by large stocks of furniture stored in one of the basements, raced through the half-block-long establishment and then spread to involve the adjoining basements and later the apartments above. At one stage, flames broke through the roof of the building. Of the eight apartments, three were destroyed, three others badly damaged by smoke and water, with two comparatively undamaged. Nine stores were involved to a greater or less degree, four receiving the most damage.

The heavy smoke which made ventilation difficult, punished the firefighters In spite of the dense smoke, however, first arriving companies worked into the structure. It was during this trying period that the men received their fatal or near fatal injuries.

The stubborn fire resisted the best efforts of the department, using heavy streams, cellar pipes and swivel nozzles, for over two hours.

Sgt. Clifford E. Bannon, one of the two firemen to lose his life, has just been promoted after 21 years with the department. It was his first day as a member of Engine 49. Fireman James Daggett, who also lost his life, joined the department in November, 1947.

The loss from this fire was estimated at from $125,000 to $250,000. The department recorded ten hours and 44 minutes of fire service.

The chronology of alarms and the response follows:

4:46 A. M. Box 5224 (Dexter and Richton) Engines 21, 42, 40; Ladder 28; Battalion Chief 9; Rescue 4.

5:08 A. M. 2-2: 5224 (Second Alarm) Engines 39, 49; Ladder 21; Battalion Chief 5; Ambulance; Light Unit; Bureau Chiefs.

5:21 A. M. 3-3: 5224 (Third Alarm) Engines 34, 51; Ladder 15; Chief of Department (Ninnian Higby).

5:22 A. M. 4-4: 5224 (Fourth Alarm) Engines 12, 10; Ladder 24; Battalion Chief 4.

6:12 A. M. Special call for 4 Engines. Engines 17, 43, 13-X, 18.

The following apparatus relocated: Engines 47/40, 15/42; Ladder 20/28; Battalion Chief 8/5. These extra companies were placed in service: Engines 12-X to 21, 28-X to 49, 18-X to 39, Engine 37-X to 10. Battalion Chiefs 5 and 12 were eventually sent to the fire. Battalion Chief 2 later occupied Battalion Chief 1's quarters.

Railroad Car Shops Destroyed

The fourth fire, a spectacular 5-alarm blaze, totally destroyed the Michigan Central Railroad's Car Repair Shops, with an estimated loss of $250,000. So rapidly did the flames spread that an interval of only 15 minutes separated the first from the 5th alarm.

Fed by large stocks of coal and lumber, the flames roared through the large wooden structure for more than an hour before being brought under control. The building, 600 feet by 150 feet, also housed wood, paint, tin and acetylene torch shops plus storage rooms for parts and repair materials. Also reported destroyed were 15 railroad cars.

Although the first alarm response to the preliminary box 7-2159, Livernois and Federal, was prompt, the entire interior of the building was already in flames upon their arrival. Firemen were hampered by heavy clouds of smoke and a stiff wind that threatened several exposures in the heavily built up railroad yards. Several of these did catch fire but all of them were quickly extinguished.

No serious injuries were sustained by the firefighters.

This is said to be the first extra-alarm fire to test the Fire Department's new F.M. Radio Station WKDT, the department having received its license to operate from the Federal Communications Commission only the day previous. All additional alarms and calls were handled through the radio equipment installed in Battalion Chief 7's car.

Another interesting sidelight was the setting of a series of fires by an arsonist that destroyed six garages and nine automobiles in an area of a few blocks, during the period the department was heavily involved with the Car Shop fire. This gave some hectic moments to the Telegraph bureau, struggling to cover-in for the apparatus fighting the five-alarm blaze.

At one time 15 fire companies were occupied in dealing with the garage fires set by this arsonist. Inspector Roderick Goeriz of the Police Arson Squad was reported to have stated that all of the fires were started inside automobiles, after the arsonist had saturated the cushions with gasoline.

Time of alarms and response:

8:53 P. M. (January 19). Box 7-2159 (Michigan Central Car Shops). Engines 22, 27, 37; Ladders 8, 4; Battalion Chief 7; Rescue 4.

(*Continued on page 286*)

FOAM FIRE PROTECTION OF SOLVENT PROCESS BUILDINGS

Installations Believed to Mark a Pioneering Step in Design of Protection for Solvent Process Buildings

By C. L. Jones*

THE Brunswick, Georgia, Naval Stores Plant of Hercules Powder Company processes pine stump wood, and produces by an extraction process of the milled wood, various pine products such as rosin, resins, pine oil, turpentine, etc. These products are further refined, and are also used as raw materials to produce other chemicals.

The extraction process is carried out in pressure type extractors constructed of steel and conforming to the A.S.M.E. Code for unfired pressure vessels—these being located in a building known as the Extractor House. The extraction solvent is benzene, C_6H_6. The operating pressure of the vessels and other parts of the extraction system is of the order of 100 pounds p.s.i. at a temperature of about 285° F.

After the various pine products have been extracted from the milled wood, the hot crude or drop solution is processed in another building known as the Refinery, where the benzene is stripped off or evaporated, after which the benzine is returned to storage tanks near the Extractor House for reuse as extraction solvent.

The various crude pine products after being separated from the extraction solvent in the Refinery are further processed in other buildings, one of which is the Pexite Plant, where the various commercial grades of rosin, ranging up to WW are produced. The solvents used in the Pexite building are gasoline and furfural. The quantity of solvents in process in each of the three buildings (Extractor House, Refinery and Pexite Plant) is large, the greatest amount being in the Extractor House.

The plot plan, Figure 1, shows the size and relationship of the three build-

*Safety Engineer, Hercules Powder Company, Wilmington, Delaware. The material presented herewith represents excerpts from an article prepared by the author.

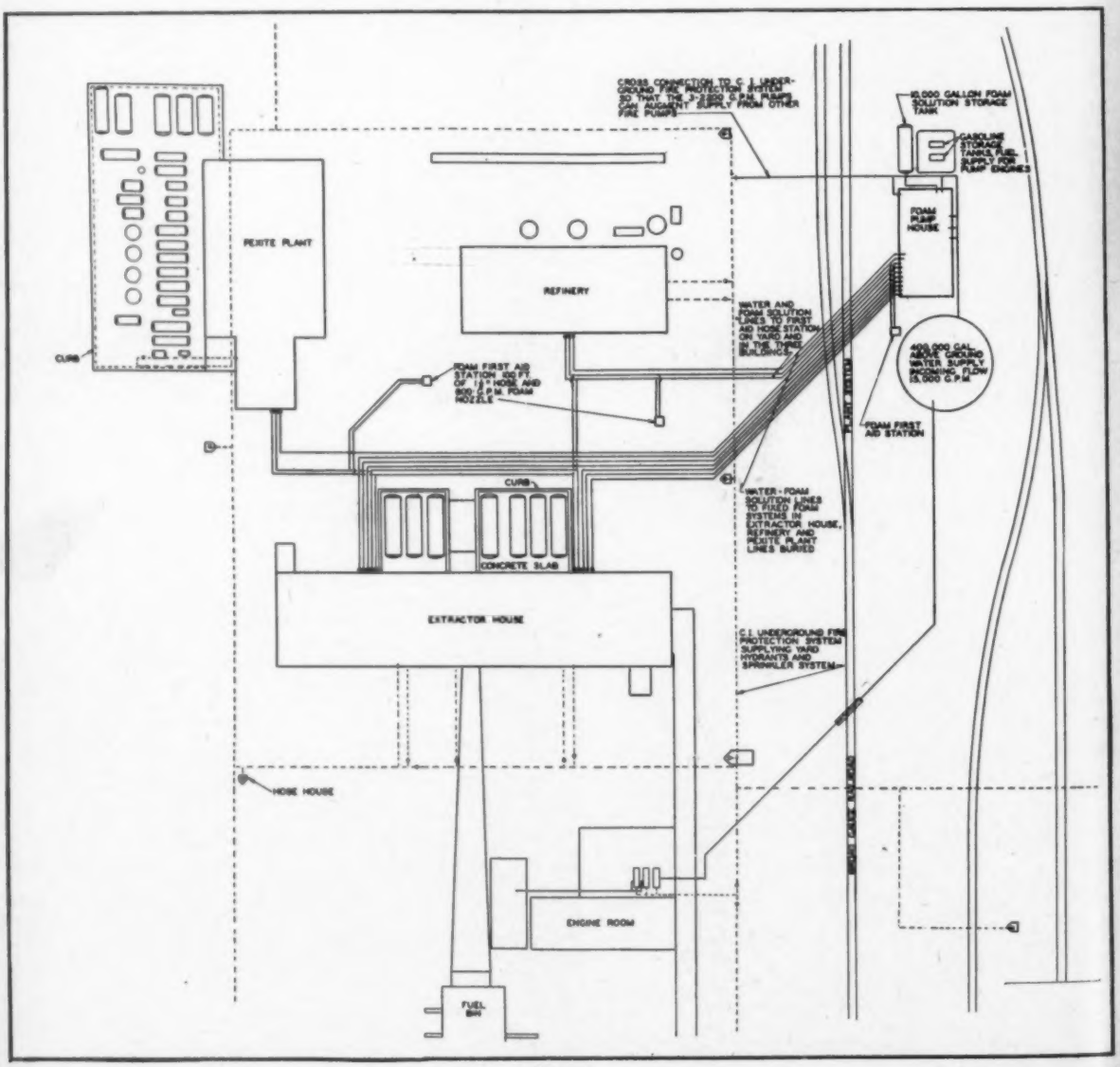


Figure 1

ings to each other, and to some of the other units of the plant. A sizeable number of persons are employed in and around these buildings and in nearby areas; also, the investment in these three buildings and nearby units is quite large.

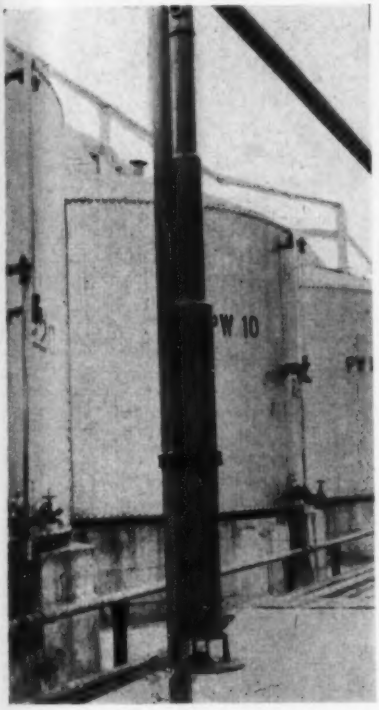


Figure 2. Marine Nozzle—Foam Mixer

The fire protection in place prior to the installation of the fixed foam protection described in this article consisted of deluge sprinkler systems in the Extractor House, Refinery and Pexite Plant, sprinkler systems of various types in all other buildings of importance on the plant, yard hydrants liberally placed, each being supplied with an adequate amount of 2½" C.R.I. hose, several portable foam generators with a liberal supply of foam powder, first-aid extinguishers of various sizes, such as 40 gallon foam engines, carbon dioxide, carbon tetrachloride, and dry powder chemical extinguishers of various sizes. Furthermore, the plant force had been trained in the use of all such facilities.

The water supply for the sprinkler systems is from a 100,000 gallon elevated water tank, providing an average static pressure of about 75 pounds p.s.i. at ground level. Fire pumps of several thousand gallons capacity per minute at about 100 pounds p.s.i. supply the cast iron underground fire protection system, which, of course, feeds all of the various sprinkler systems throughout the plant, as well as the yard hydrants.

The fire protection cited above may seem adequate, but Hercules Powder Company management believed that the protection might not be effective in the event of a large spill of benzene or other solvent followed by fire.

A decision was made, therefore, to devise a system of protection which would be quickly effective on a fire involving benzene or other solvents which might occur in any one of the three main buildings; and that protection to be adequate to combat a fire involving all three floors of the Extractor House, having a total floor area in excess of 35,000 square feet.

Figure 3. Condition at Start of Performance Test of Foam Installation (Time 0)

A large amount of research work was carried out. Different fire fighting mediums were considered, and various size tests were made on fires involving burning areas up to about 1,000 square feet per fire and 700 to 800 gallons of benzene.

After completion of the various tests which extended over a period of a year and a half, the observed results led to the conclusion that a protein base foam with an expansion of 9 to 10 was the best medium for combating and controlling benzene fires, and that such foam would also be effective on other solvent fires which might occur on the Brunswick Plant.

Tests were also carried out to determine the effectiveness of a foam blanket on a fire involving hot benzene. It was found in these tests that even with the benzene at near its boiling temperature, when fired, the foam blanket was effective in extinguishing the fire.

A liquid foam solution instead of foam powder, or other foam producing mediums was selected because of ease of operating the foam producing equipment and the simplicity of design. When using the liquid foam solution, one man, by operating a few switches, can quickly start up all of the equipment and arrange for the delivery of the foam solution to the desired points of use, where it is applied by fixed systems.

The design of protection finally adopted included fixed water-foam solution distribution systems somewhat comparable to "sprinkler" installations, in each of the three buildings. In the case of the Extractor House, there is a total of six systems, each system being arranged to protect half of each of the three floors. Nearby is a building which houses pumps handling benzene; this pump house is similarly protected. Also, a number of large tanks near the Extractor House, which normally contain benzene, are similarly protected; that is, foam can be applied to the area around these tanks.

In each of the two other buildings a single system is installed. Here also, the nearby area on which the outside "work" or process tanks are located is foam protected.

It was reasoned that if fires should occur, those of greatest magnitude and severity would probably be at the floor or ground levels.

The foam applicators as installed are

Figure 4. Time 1 Min. 30 Sec. Full Strength Foam Starts

placed so the discharge deflector plates are about 9" to 12" from the floor, or other surface protected. The piping distribution system which supplies the various foam makers is above head height with an air aspirator near the top of each foam maker. See Figure 2 for a typical marine nozzle-foam maker installation. The marine nozzles are so placed that in case of need all areas of all floors can be quickly covered with foam. The floor or ground of each protected area can be covered with a foam blanket at least 6" deep within three minutes or less. In the case of the Extractor House, this calls for a delivery of about 130,000 gallons of foam in that time. This is the largest load for any of the buildings.

The rate of foam application, about 1.20 gallons per square foot per minute, is in excess of the minimum requirements set by the Underwriters' Laboratories for the protection of tankage.

To supply the water-foam solution, the following equipment has been installed:

3 - 2200 G.P.M. centrifugal water pumps, which deliver water at a pressure of 140 - 160 pounds p.s.i.

The water, from all three pumps, is delivered to a manifold, and from which individual underground steel pipe lines supply the fixed foam systems in the various buildings, each such line being manually valved off at the manifold.

To inject foam solution into the suction of the three 2200-G.P.M. water pumps, two 400-G.P.M., 65 pounds per square inch, centrifugal pumps are installed. The capacity of one of these two pumps is sufficient to supply the maximum quantity of foam solution required, and both are arranged to discharge foam solution into the suction line supplying water to the three 2200-G.P.M. pumps.

One of these solution pumps is driven by an electric motor, the other by a gasoline engine.

The 2200-G.P.M. water-solution pump will discharge the 600 gallons of water-foam solution to the system calling for that amount, as the requirements of the particular system will call for approximately that quantity of foam solution. The excess over the 600 G.P.M. demand is discharged back into the suction side of the water-solution pump by means of a relief valve, to be recirculated.

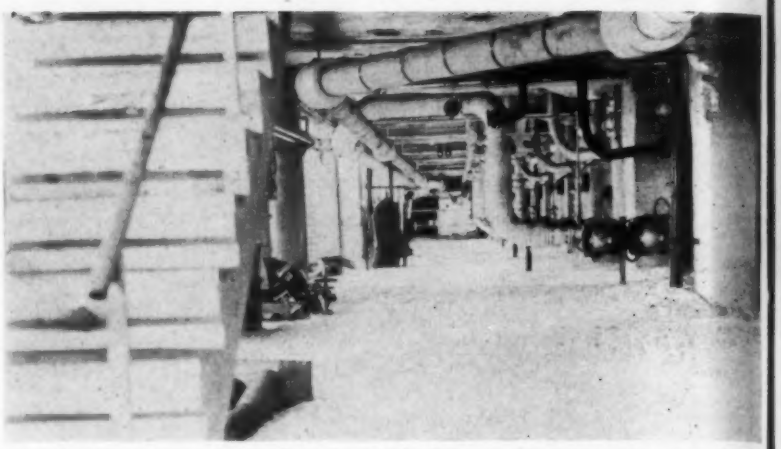


Figure 5. Time 4 Min. 30 Sec. Floor Completely Covered with Foam to Full 6-Inch Depth at Outer Edge

The 600 gallons per minute of water-foam solution is delivered to the particular system needing foam. Near the top of each foam maker there is an air aspirator, which automatically mixes air with the solution, which is then delivered onto the burning surface.

A sufficient quantity of foam solution is provided to supply the maximum load for a considerable period of time. This foam solution is stored in a 10,000 gallon, above-ground, steel tank, normally closed to the atmosphere. Both of the foam solution pumps have a flooded suction, and solution is always up to the pump suction. This tank is insulated to protect the contents from extremes of temperature.

In addition to the fixed protection, first-aid foam hose streams have been provided in the various buildings for combating small fires if any such should occur.

This first-aid part of the foam protection is arranged as follows: Water and foam solution, always under pressure, is up to the respective quick opening valves at each first-aid station, so all that is necessary is for an operator to open these valves, and both water and foam solution are being admitted in proper proportions to the first-aid hose, each of these hoses being fitted with a foam making nozzle.

100 feet of 1½" hose, mounted on reels, has been installed at each first-aid station, and is permanently connected. The capacity of each such hose is 600 gallons of foam per minute.

To maintain pressures on the first-aid system, a small water pump is arranged to operate automatically. If the water demand from the first-aid stations should exceed the capacity of this pump, one of the 2200 gallon pumps is also arranged to operate automatically, starting up after a predetermined drop in pressure.

A similar method applies pressure to the foam solution; except, in this case, the automatically operated small foam solution pump is sufficient to supply the maximum number of first-aid foam hose stations which might be put into use.

In order to build up the required depth of foam blanket on the various floors, concrete curbs at least 6 inches high have been installed around the building perimeter on all floors. Similar curbs have been installed around all floor openings, so that each floor level or other surface protected is in effect a pan at least 6 inches deep. Thus, if a liquid spill should occur, it is retained within that pan, and when foam is applied, it builds up on top of that liquid surface. These curbs have also been placed around the protected tankage areas near the buildings.

All three foam protected buildings are also protected by sprinkler systems, and in case of fire, water could be discharging from many sprinkler heads. It was at first thought that this sprinkler water discharging onto the foam blanket would quickly damage it, and some consideration was given to the idea of shutting off the sprinkler systems. But, before reaching that decision, tests were made to determine if the foam blanket would be quickly damaged by sprinkler discharge.

It was found that the foam blanket was not seriously damaged by water flow from sprinkler heads for a number of minutes; therefore, the decision was reached to leave the sprinkler systems "on" in all three buildings. The water

(*Continued on page 286*)

Figure 6. Interior View of Pump House Showing Control Valves of Fixed Systems

Left: The Original Fort Monmouth Fire Department as It Looked 23 Years Ago. Right: Part of Fort Monmouth's Modern Fire Department Lined Up for Inspection on 23rd Anniversary

Fort Monmouth Fire Department Celebrates Its 23rd Anniversary

In January, last, the Fort Monmouth Fire Department celebrated its 23rd anniversary. Since it was established in January, 1926, the department has given an impressive account of itself, both in expansion and operations.

Starting unimpressively with only one piece of apparatus and a chief's car, with headquarters in an old wooden shed, the department now has a modern brick headquarters, with eight pieces of modern equipment, organized in six operating companies under the direction of Lt. Col. William C. Holley, Fire Marshal, and Harry T. Litts, Fire Chief, whose home is Rumsen, N. J.

Three of the department's companies are situated on the Post proper and one each is located at Evans and Coles Signal Laboratories and Camp Wood. In addition, as a member of the Monmouth County Fire Association, the department automatically covers adjacent Oceanport, and is prepared at all times to assist companies of other communities on request.

Reviewing activities of last year, Chief Litts reports only one major fire out of the 94 alarms received, 34 of which were false or accidental. The one fire that spoiled the otherwise impressive record was in a double mess hall, which was completely destroyed.

Contributing to the department's record of accomplishments is the policy adopted by Chief Litts of placing experienced men in charge of fire districts. The Chief has had wide experience himself, having organized the first U. S. Army Fire Department in 1917 at Camp Sevier, Greenville, S. C. He has been with the Army ever since, having occupied the post of fire chief at Camp Funston, Fort Riley, Fort Dix and Fort Monmouth as well as serving as fire-prevention and protection field engineer of the Association of American Railroads.

Assisting Chief Litts is Edmund S. Crelin, Sr., formerly chief of the Red Bank, N. J., Fire Department. In charge at Evans Signal Laboratory are Charles J. Wesson, formerly Chief of the Fair Haven, N. J., Fire Department, and Irving S. Van Brunt, formerly chief at Eatontown, N. J. Jerry McConvey, in charge of Coles Signal Laboratory and Camp Wood Fire Departments, is another ex-chief of the Red Bank Fire Department.

Fort Monmouth's firemen go in for extensive fire service training. During the last war, 128 fire fighters were trained for overseas duty. Assistant Chief Crelin assists Chief Litts in presenting the training course, which is held five days weekly and consists of lectures in the morning and practice in the afternoon on all firemanship subjects, from the care and use of hand extinguishers and operation of motorized apparatus to the chemistry of fire and handling of forest fires. There are now sixty-two enlisted men and five civilians in the department.

Another factor which has held the Fort Monmouth fire losses to the minimum is the dividing of the area, which incidentally has a total of 1097 buildings, some of wood construction, into twenty-four fire districts, each with its own fire marshal. Daily inspection is made of all fire equipment in the buildings in each district and a written monthly report is submitted to the office of Chief Litts, where a record is kept on a card index. During 1948 a total of 19,486 inspections were made. Fire drills are held monthly in each organization and every sixty days in each theatre during a performance, as well as an inspection of every assembly hall following an exhibition. Demonstrations are given every three months in the Special Services School and twice yearly for the entire post. Several times yearly an inspection is made from the First Army Headquarters, Governors Island, N. Y.

Two hundred and eighty-five hydrants were installed on the properties, as well as 85 fire-reporting telephones connected directly with the switchboard in the dispatcher's room at fire headquarters. All alarms are transmitted in code to all fire stations.

No report on the Fort Monmouth Fire Department would be complete without mention of "Spot," the Dalmatian mascot. Now only three months old, "Spot" is being trained in his "important duties" and seems to be bearing up well under the responsibilities. He replaced "Smoky," who was with the department for six years, and was accidentally killed by one of the trucks responding to an alarm last spring.

Improvements Cut Burlington's Insurance Rate

Fire insurance premiums on real and personal property in Burlington, N. J., will be reduced following the city's reclassification as a Class "D" municipality, based on installation of a modern fire alarm system and other improvements, it is revealed by Walter B. McLean, Burlington fire alarm engineer.

Fire Chief Harry T. Litts, "Spot" and Assistant Chief Edmund S. Crelin, Jr., at Wheel, Respond to Alarm on 23rd Anniversary of Fort Monmouth Fire Department

Toronto Firemen Subdue Threatening Warehouse Fire

Toronto, Ont., firemen prevented a hot fire in an 80-year-old fast-burner warehouse loaded with hardware and auto supplies, including anti-freeze, from communicating to a row of adjoining 4-story aged structures, early in February of this year.

The fire, for which three alarms were sounded, gutted half of a 4-story mill-type brick and joist warehouse on Wellington street west of Church street.

The fire was discovered by a pedestrian, who pulled box 113, corner Wellington and Scott, half a block from the fire. The alarm was received at fire alarm headquarters at 9:45 P.M. This alarm was followed at 9:46 P.M. by another signal from high pressure box 4.

When the first due companies arrived on the scene, they found the district covered by heavy clouds of smoke, and flames coming from the 3rd and 4th floor windows on the Wellington side of the warehouse.

Firemen took the first lines into the building while an aerial ladder pipe was placed into operation on Wellington street. The first arriving chief, realizing the gravity of the fire, transmitted a second alarm at 9:51 P.M., and when Assistant Chief Joe Waterman arrived in response to this signal, he ordered a third alarm, at 10:11 P.M.

Efforts were directed toward preventing extension of the fire that dominated the upper stories of the burning structure. These included the row of old buildings west of the warehouse, and the other half of the warehouse itself, and three office buildings to the east. The 5-story building across Wellington street was not in danger, but the buildings to the rear of the warehouse, across a 20-foot alley, were exposed to the fire. Ten lines of hose were used on the north side of the burning building, operated from the ground and from fire escapes and ladders, to cover these exposures, while other lines were operated from the roofs of the building to the west. Two high pressure streams from deck guns, in addition to two from aerial ladder pipes, were directed into the structure from the Wellington street side.

This massing of forces held the fire from reaching the eastern section of the warehouse and from jumping the alley at the rear. On a number of occasions, firemen were compelled to withdraw from the interior of the burning structure due to the heavy smoke and the exploding drums of antifreeze. About 11:30 P.M. flames broke through the roof and Fire Chief Peter Herd, who had taken charge of operations upon his arrival, ordered lines stretched into the east building to further cover it inasmuch as it was divided from the blazing structure only by a thin fire wall. Men and lines were located on each floor, and about midnight another aerial ladder was brought into operation on the Wellington street side.

Not long after this ladder went to work the roof caved in, taking with it the two top floors. No firemen were caught in the collapse although several were cut by glass. With the roof gone the flames leaped high in the air, showering the adjoining district with burning embers but, fortunately, starting no additional fires. With the upper floors gone, fire fighting was confined to the outside, and it was not long before the flood of water from the many hose lines had its effect. By 1:00 A.M. the fire was under control and at 2:30 A.M. the high pressure lines were shut down and the third alarm assignments ordered back to quarters. However, companies continued to wet down the building until after 9:00 A.M.

Firemen were handicapped by the presence of overhead power wires and the trolley wires on Wellington street. Ice, which rapidly formed in the sub-freezing weather, presented further difficulties.

The chronology of alarms and response was as follows:

9:45 P. M. H.P. box 113, Pumpers 1, 5; Ladder 1; Aerials 5 and 1; H.P. Hose Truck 1; Squad 1; District Chief.

9:51 P.M. Second alarm, H.P. box 113, Pumpers 4, 7, 11; Ladders 4, 7; Asst. Chief Joe Waterman, Dr. Ralph.

10:11 P.M. Third alarm; Chief Peter Herd; Dep. Chief Albert Steen; Pumpers 2, 3, 10; Aerial Ladders 2, 10; H.P. 2; Consumers Gas Emergency; Hydro.; T. T. C. emergency.

Hose lines in operation 20; 2½-in.; 4 H.P. streams 300 lbs. pressure. Loss, estimated at $100,000.—JOHN KARL LEE.

Toronto Firemen Use Heavy Streams to Control Warehouse Fire. High Pressure Lines from Street, Ladder and Turret Prevent Three-Alarm Warehouse Fire from Spreading Through Warehouse District

Hotel Burns Without Loss of Life

More than 125 guests in two hotels in the heart of the theatrical district in downtown Quincy, Ill., were driven from their rooms at 2 o'clock in the morning on Jan. 5 when fire broke out in a fourth floor room of the Tremont hotel building and spread rapidly. Twenty-five of the 35 rooms were occupied.

The Tremont, one of the oldest hostelries in the city, is tenanted principally by working men and women and elderly men. It is next door to the modern, fire-resisting Hotel Quincy, with seven stories and 138 rooms. About 100 guests were in the Quincy and they were ordered from their rooms when smoke from the flaming Tremont permeated all of the floors, especially the fourth and sixth.

Four of the guests of the Tremont were rescued by firemen, three of whom were brought down an aerial ladder, and the fourth, a cripple, was carried by firemen from his second story room to the lobby of the Quincy. Two of those brought down the aerial were husband and wife, both of whom are deaf mutes. The woman is also nearly blind.

The fire started in the Tremont when a coal oil stove exploded. The elderly occupant had been ordered to leave the building the day before the fire started, it was reported to fire officials, who said they understood hotel officers did not know the stove was in the room. The occupant suffered severe burns on his hands when he stumbled while getting out of bed and fell into the flames which were burning fiercely in a clothes closet near where the stove had stood.

The flames coursed down to a third floor partition wall, then came roaring back in another location to the fourth floor where they mushroomed in all directions. The fire spread so rapidly that it was out through a section of the roof before firemen arrived.

The first alarm was sounded at 3 a.m. and it was followed immediately

by a second when Chief George Simon arrived. First arriving apparatus and crews were confronted with the four guests, whose exit had been cut off from the fire escapes and stairs by the fire across from their rooms. Flames were sweeping the entire fourth floor and were out through the roof. Smoke poured from upper floor windows.

The ground floor of the Tremont is occupied by headquarters of a political organization and an electrical appliance firm. The latter sustained heavy losses from water which poured onto electric stoves, radios and the like.

Fire-fighting operations were directed by Chief Simon and Assistant Chiefs John Heelan and Lloyd Boden. Third Assistant Chief Ernest Behrens is confined to his home suffering from smoke inhalation sustained at a stubborn basement fire two months ago. Four 1,000-gallon pumpers, one 750-gallon pumper, one aerial and a light and utility truck were in service. Seven engine lines were used in fighting the fire which was brought under control within two hours.

Two persons lost their lives in a fire which burned a part of the Tremont on June 22, 1904, and disaster hit the place again on April 12, 1945, when a tornado that caused millions of dollars of property damage here unroofed the structure. Firemen took 25 guests to an armory.

EARL NOLAN

Flint Lighter Causes Blast

Fumes, which had been escaping from a small bung in a 50-gallon drum of paint thinner in an auto body repair and paint shop in Portland, Ore., were ignited when the proprietor, Ralph Muhler, carelessly attempted to light an acetylene torch nearby, resulting in an explosion which rocked the neighborhood, and killed the proprietor. A youthful helper, who had been called from the shop a moment before, emerged unhurt.

It was disclosed upon investigation that the drum had been setting in the sun, where the heat accelerated vaporization. The blast hurled the owner out of the shop onto the sidewalk, smashed windows and the resultant fire scorched the interior. Burning paint thinner was spewed over the interior of the small shop and flames shot into the street. An auto on which Muhler was working was destroyed and another one damaged.

The Portland Fire Department quickly extinguished the blaze.

Paint Thinner Drum After Explosion at Portland, Ore.

"Johnny" Says "Please Be Careful"

Philip Morris is cooperating with the fire service in the effort to reduce the number of fires attributed to "smoking in bed." Among other things, the company supplies a "Please Be Careful" card for use of hotels, which is having wide acceptance. Here, LaMar Bailey, Public Relations Officer, Detroit Fire Department, thanks Jack Prokop, Philip Morris Section Manager, for this cooperation.

Correspondence

Contest Accidents

To the Editor:

Your recent editorial condemning volunteer firemen's tournaments because of your impression that many participants are injured than such contests warrant resulted in our checking our records of our last tournament with the American Red Cross whose volunteer squad with a volunteer doctor were in attendance.

They show that with 175 teams totaling 1,610 men participating in six contests only 19, including spectators, were treated. And every case of even a scratch received attention! None received other than minor injuries that required no further attention at all.

This is a percentage, forgetting spectators, of only 1.18%. In other words, about one in a hundred!

Compare this with injuries at football and other games! And have your reporter present at our next tournament in Rockville Centre on June 25th next to actually see what happens.

Very truly yours,
JAMES MCINNES, JR.
Secty., Nassau Co Firemen's Assn.

Fur Vault Fire Protection

To the Editor:

I noticed in the January issue of FIRE ENGINEERING a story about the Boston Storage Warehouse which recently installed a carbon dioxide extinguishing system for protection of its fur vaults. The story states in part, "This is the first fur storage in New England to be protected against fire by a carbon dioxide installation."

In the interest of accuracy, I think you will be interested in the fact that Walter Kidde & Company, Inc., installed a carbon dioxide extinguishing system nearly four years ago in the vaults of the Yale Cold Storage Co., New Haven, Connecticut.

Very truly yours,
WALTER KIDDE & COMPANY, INC.
STUART GRANT, Adv. and Sales Promotion Mgr.

Model Fire Station at University of Illinois

The University of Illinois and the state fire marshal's office have been asked to pool funds for the construction of a model fire station to be located on the campus of the University.

This station would serve as the center of the firemen's training program of the state, it is said

News of the Manufacturers

Federal Advances Scott

The election of William W. Scott as Vice-President in Charge of Sales of Federal Enterprises, Inc., has been announced by L. A. Miller, corporation President.

William W. Scott

Scott, who has served as Sales Manager for the past year, is a veteran of the Federal organization, having directed the Signals Division for many years.

As a Vice-President he succeeds Robert L. Kester, Jr., who resigned recently to open his own business in New York.

R. W. Sweatt Joins New Jersey Fire Alarm Co.

Robert W. Sweatt has recently joined the New Jersey Fire Alarm Company of 37 South Eighth Street, Newark, N. J., manufacturers of Sidalarm automatic fire detection systems, as Sales Manager. This company has been in business for the past forty-eight years and has now entered into the sales promotion of its automatic detection equipment. This equipment bears the label of the Underwriters' Laboratories.

Previous to joining the New Jersey Company, Mr. Sweatt was General Sales Manager of the Atmo Automatic Fire Alarm Company.

He recently appeared before the City Commission of Miami, Fla., in connection with the protection of hotels of that city by employment of fire detection equipment and by orientation of hotel personnel in the proper means of evacuating the guests and notification of the fire department.

New 2,000-Gallon Firefighter

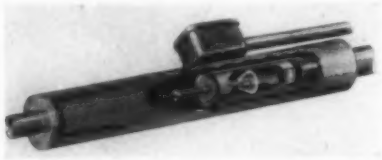
L. B. Smith, Inc., of Camp Hill, Pa., Syracuse, N. Y., and Philadelphia, Pa., has recently announced a new "2,000-gallon firefighter."

The unit, designed especially for suburban and rural communities with limited water supply, consists of a tractor-drawn tank of 2,000 gallons capacity, and carries the following equipment: a Hale type FZZ Pump (60 to 150 g.p.m. at 90 to 30 pounds pressure); 1,500-watt, 110 volt A.C. light plant; three 250-watt floodlights; aluminum pike poles and folding ladders; 300 feet of 1½-inch double jacket rubber lined hose; 250 feet ¾-inch booster hose; two sections of 2-inch suction hose; one 24-foot aluminum extension ladder; two 15-pound carbon dioxide extinguishers; fog nozzles, siamese connections, axe, pick, shovel, four rubber rainsuits and hats and two 5-gallon fuel cans.

Kidde Smoke Detector

A single unit photoelectric smoke detector for early detection of incipient fires in hazardous plant and warehouse areas has been developed by engineers of Walter Kidde & Company, Inc.

Principles employed in the design



Inlet End of Analyzer Tube (Top) Contains Exciter Lamp, Lens Housing and Filter. Air Sample Enters Here, Passes Through Filter, Over Lamp Cooling Fins and Through the Length of the Tube. Outlet End of Tube Houses Photoelectric Cell and Air Sample Exhaust Passage

and operation of the new, approved industrial smoke detector are similar to those of marine type detectors, which Kidde has been building since 1917.

A continuous sample of air is drawn from the protected space through an individual piping system into an analyzer tube. In the analyzer tube the air sample passes through a filter screen (to remove dust and dirt), then into a beam of light focused on a photoelectric cell. Smoke in the air sample cuts down the amount of light reaching the cell and sets off an alarm connected through an electrical circuit to a control panel.

Eubanks Joins Fyr-Fyter

Irvin A. Eubanks, formerly Sales Promotion Manager for the Airtemp division, Chrysler Corporation, has been named Advertising Manager of the Fyr-Fyter Company in Dayton, Ohio. Don O. Wood, Executive Vice President of

Irvin A. Eubanks

Fyr-Fyter, in making the anouncement revealed that Eubanks will have charge of all Advertising and Sales Promotion activities of the firm. Eubanks replaces Ray C. Hahn who is retiring after 25 years with Fyr-Fyter.

Eubanks joined Chrysler Airtemp in 1946 following five years with the Journal-Herald Publishing Company in Dayton. Before that he was Advertising Manager of the Wellston Daily Sentinel in Wellston, Ohio. He is a graduate of Ohio State University.

Apparatus Builders Organize

At a meeting held at the Hotel Statler, Cleveland, Ohio, by a representative group of motor fire apparatus, the Motor Fire Apparatus Manufacturers' Association was brought into being.

Those companies represented at the meeting included: American LaFrance-Foamite Corporation (J. O. Binford and C. A. Emerich); Boyer Fire Equipment Company (Harry T. Armington); General Detroit Corporation (W. H. Thompson); Hale Fire Pump Company (R. B. Sargent); Maxim Motor Company (Ernest L. Maxim); Ward LaFrance Truck Corporation (B. W. Lewis); Waterous Company (F. A. Waterous); Young Fire Equipment Corporation (L. W. Young); and W. J. Parker, Inc. (W. J. Parker).

Other builders expressed an interest in the association, and indicated their wish to participate, but were unable to have representatives on hand for the organization meeting.

W. J. Parker, of 366 Madison Avenue, New York 17, N. Y., was unanimously elected Secretary-Treasurer. Permanent headquarters of the Motor Fire Apparatus Manufacturers' Association will be at that address.

Other officers elected were: President, Ernest L. Maxim, Maxim Motor Company; Vice-President, R. B. Sargent, Hale Fire Pump Co.; Directors, Ernest L. Maxim; R. B. Sargent; Everett A. Warren, General Detroit Corporation; J. G. Grossman, Ward LaFrance Truck Corporation; P. E. Van Pelt, P. E. Van Pelt, Inc.; and L. W. Young, Young Fire Equipment Corporation.

One of the first constructive moves of the new organization was the appointment of Ernest L. Maxim, C. A. Emerich and H. T. Armington a committee to go to Washington and discuss with officials there such problems as affect the fire apparatus industry as well as specifications for fire apparatus that may ultimately be required for governmental agencies.

To further advance the Association's interests at Washington, a representative of Mr. Parker's office, who spends three days a week in that city, will be available when needed.

The Constitution and By-Laws of the organization will be taken up at the next meeting, which will be held at Chicago, Ill., on April 28. Regular meetings of the group will be held every other month, or six times a year.

Book Shelf

FIRE FIGHTING EQUIPMENT AND METHODS IN GERMANY DURING THE PERIOD 1939-1945—The latest B.I.O.S. (British Intelligence Objectives Sub-Committee Overall) Report No. 18, issued by H. M. Stationery Office, under date of February 26, 1949, contains considerable factual information in 14 chapters, with references and index, about the progress of German fire fighting technique during World War II.

This is one of a number of publications based on investigations made by British and American missions after the termination of war in 1945, and intended primarily for those in industry and government departments.

The Report was prepared by J. F. Fry, Department of Scientific and Industrial Research and Fire Offices' Committee, Joint Fire Research Organization, London, S. W. 1.

The WATCH DESK

Overhauling the firemanic news of the day

by ROI B WOOLLEY

Lucky Dog!

There is a "lucky dog" somewhere in Paterson, N. J., at this moment who can thank Mrs. Robert Beckingham, of that city, for saving his life.

Nobody knows his name, according to Deputy Chief G. Hobart Strathearn, of the Paterson Fire Department, who

Mrs. Beckingham Giving Artificial Respiration to Dog Overcome by Smoke

tells the tale, but he belonged to the night watchman of the Dunrite Laundry at the time.

On January 15 last, a two-alarm fire in the laundry gave Paterson firemen a tough workout, and resulted in the canine being trapped in the burning structure, where he was overcome by smoke.

Firemen found the dog unconscious and removed him from the building. He was at once taken in hand by Mrs. Beckingham, who lives nearby, and who, luckily for the unnamed animal, is employed by the Paterson Chapter of the Red Cross, and is up on her artificial respiration.

Mrs. Beckingham hurried with the dog to her home where she set about reviving the still unconscious canine. In her own words to Chief Strathearn, "I took him home and worked on him for an hour—then he really showed signs of coming around. Whiskey and black coffee did the trick. Dr. Sova of the Blue Cross Hospital (an animal hospital) told us what to do over the telephone. The poor pup was the company's watchman's and really an absolute stranger to me, but he responded to kindness and nursing and I guess now he is ready to watch again."

* * *

No Foolin!—Let's Have a Fire Drill

The teacher of the Elm Grove rural school, Mrs. Clara Bailey, of Oconto, Wis., thought it was just a gag when her pupils came rushing in before class on the morning of March 18, shouting: "Let's have a fire drill."

"Why?" she asked.

"Because—the school's on fire" came the chorus from the excited youngsters.

And it was—no foolin'. And they had a drill—of sorts, and all got out safely. The frame building, however, was destroyed in the blaze believed caused by defective electrical wiring. (Thanks to the many who spotted and sent this newsbit.)

* * *

Hero Dog Buried by Sympathetic Firemen

A little black dog, nameless so far as we know, was buried in March with full honors by Los Angeles County firemen for he died a hero's death. The fire fighters were members of the County's Engine 31.

Early on a Sunday morning, Mr. and Mrs. Ralph Sturdevant of 16213 S. Georgia Ave., Paramount, were awakened by the frantic barking of their dog. They found their living room in flames.

Sturdevant made his way outside and rescued his wife by removing the screen from a bedroom window. But the little dog, confused and bewildered by smoke and excitement was trapped and died of suffocation.

Engine 31 of the Los Angeles County Fire Department, Captain Jim Thompson, responded and fought the fire. But there was no hope of saving the dog. The only thing they could do was to see that he received suitable burial, and this they did, conducting the services and interring him next the fire station. (Thanks, Capt. L. C. Correll, L. A. Co. F. D. Eng. Co. 10-50.)

* * *

Tain't Funny McGeel

A macabre sense of humor got Joseph Quirino, 28, an order to appear in a Cleveland, Ohio court and explain his practical jokes on his victim, Helen Reese, 30, which took this form—

He reported her death to an undertaker, who sent a hearse to her residence.

He turned in a call that she had been burned by a fire, which resulted in the fire department appearing at her home on a false alarm.

He had a police car sent to the plant where she works, on a false report she had been injured.

Miss Reese got herself a private detective who got a confession out of Quirino, who is married and has three small children and who is to be sentenced Feb. 26 for beating his wife. He was released on bond pending psychiatric examination. Wanna bet he gets away with it?

* * *

Fire Chief and Driver Avert Explosion

In Lansdowne, Pa., Fire Russell Wentzel and truck driver John J. Mahoney are credited with having probably prevented a serious explosion when, at imminent danger to their own lives, they crawled into an unloading pit at the Crucible Steel Casting Co. to turn off oxygen from a blazing truck which threatened momentarily to explode and communicate fire to large storage tanks.

It is reported Wentzel and Mahoney were covered by five hose lines delivering water fog at 200 pounds pressure, as they inched their way through the narrow aperture of the unloading pit to close the tank valve on the truck. The fire broke out when the truck was unloading 165,000 cu. ft. of oxygen. Flames shot 50 feet in the air, threatening the plant and neighboring buildings.

HORACE H. PUSEY

* * *

Firemen Stage Five-Alarm Wedding

In Minneapolis, Minn., Patricia Frayne, 22, married Frank Bottenhorn, 27, in St. Stephen's Church recently, and thereby hangs a tale.

The bride is a daughter of John F. Frayne, member of the St. Bernard Fire Department for 27 years. She, and her hubby, strangers to Minneapolis, worried for fear they would have no one at their nuptials. So, Fireman Frayne went into action. He wrote Fire Chief George S. Lockhart of Minneapolis a letter which read: "As both Pat and Frank are strangers in your town, I wonder if some of my fellow firemen in Minneapolis wouldn't attend the ceremony? Ma and I can't lay our hands on the kind of money it would take to go there and have any money left to get back on. This may seem like a silly request, but do what you can. Thanks, Buddy."

It didn't sound unreasonable to Chief Lockhart, who sent copies of Frayne's letter to every fire house in the city, with his own note: "I hope every city fireman who is off duty Saturday morning will attend the wedding of the daughter of a fellow fireman. Any who can, should go in uniform, and take his wife."

Leave Church Under Arched Axes

Newlyweds Frank Bottenhorn of Cincinnati, Ohio, and his bride, the former Pat Frayne of St. Bernard, Ohio, leave St. Stephen's Church in Minneapolis, Minn., through an honor guard of Minneapolis firemen. The firemen turned out 100 strong for the wedding.

Fire bells mingled with church bells as the firemen turned out. The chief's official car was at the disposal of the bride. The latest in apparatus was paraded, with the happy couple, an engine company furnishing the rice, a breakfast and a wedding present. "All hands"—100 of 'em—pitched in to make it a "five alarm affair."

FALSE ALARMS

Come Bearing Burdens

An Irishman, inviting a friend to his wedding anniversary, explained how to find him in the apartment building where he lived. "Come to the seventh floor," he said, "and where you see the letter 'D' on the door, push the button with your elbow and when the door opens put your foot against it."

"Why do I have to use my elbow and my foot?" asked his friend.

"Well for heaven's sake," exclaimed the Irishman, "you're not coming empty handed, are you?"

Heard at a service station:

Attendant: Your doctor is outside with a flat tire. What shall I do?

Service Station Owner: Diagnose it as inflation of the perimeter, and charge him accordingly.

First Fireman: "I know a man who has been married forty years and spends every evening at home."

Second Fireman: "That's what I call true love."

First Fireman: "The doctor calls it paralysis."

Tony (talking on phone to garageman): "I want you to come and feex my car—she no go."

Garageman: "What seems to be the trouble?"

Tony: "I dunno—but the battery, she no bat. The spark plugs, da no spark. The generator, she no gin. The pistons —dey no work either."

"My wife is scared to death someone will steal her clothes."

"Why don't you insure 'em?"

"Oh, the wife has a better idea. She has some guy stay in the closet and watch 'em. I found him there last night!"

Social Worker: "Do you owe any back house rent?"

Relief Seeker: "Oh, no, Ma'am. We got modern plumbing!"

Husband to Domestic Relations Judge: "We were happy for over a year, Your Honor, and then—then the baby came."

Judge: "Boy or girl?"

Husband: "Girl—she was a blonde and moved in next door."

One: "Will you please explain to me the difference between shillings and pence?"

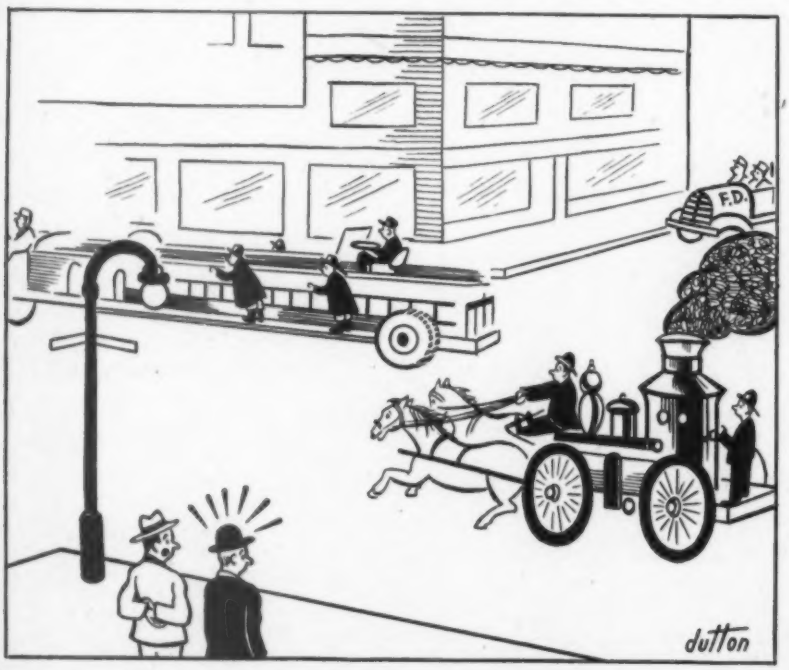
Two: "You can valk down the street vidout shillings."

An elderly gentleman saw a young boy sitting on the curb crying and sobbing. "Why are you crying, little boy?" the oldster asked.

"Because I can't do what the big boys do," he sobbed.

So the oldtimer sat down on the curb and cried too!

The best way to get a good, lasting finish on your car is to try and beat the train to the crossing.



"They Show Up at Every Blaze to Remind the Public of Our Drive for New Equipment"

Revelation

Mary had a little dress,
Dainty, chic, and airy.
It didn't show a bit of dirt,
But gosh, how it showed Mary.

Mary had a lovely calf—
She showed it very well;
There were women on the jury—
Now our Mary's in a cell.

First Vamp: What kind of a fire truck is that you got there?"

Second Vamp: "Oh, that's our new hashmobile. It's got an Autocar frame, a Mack top, a White motor and an International body."

First Vamp: "Where in the world did you get it—at a used commercial vehicle lot?"

Second Vamp: "Nope—at a railroad crossing."

Junior: "Daddy, what's a sweater girl?"

Dad: "Why, er-uh, a girl who works in a sweater factory." And after a moment's pause, "Say, where did you get that question?"

Junior: "Never mind that Daddy—where did you get that answer?"

"Captain, would you please help me find my stateroom?"

"Yes, Ma'am, what number is it?"

"I don't remember the number, Captain, but I'll know it when I see it—there was a lighthouse just outside the window!"

The young minister was reading announcements at the Sunday service. He stumbled across one of them and the following words slipped out: "The Little Mothers' League will hold their weekly meeting this afternoon. All those who wish to become Little Mothers, please see me in the rectory."

Her dress was tight, she scarce could breathe;
She sneezed aloud, and there stood Eve.

The fireman and a rookie were swapping tales of their respective hunting exploits. "Once I was hunting lions in Africa and discovered a lion standing 20 feet away and didn't have my gun," said the rookie. "The lion kept coming closer and closer until he was only five feet away."

"What happened?" asked the fireman.

"He leaped up at me and killed me."

"What do you mean, he killed you?" replied the fireman. "You're on the job here very much alive."

Replied the rookie, as he continued to clean the grease from under the fire truck chassis, "You call this living?"

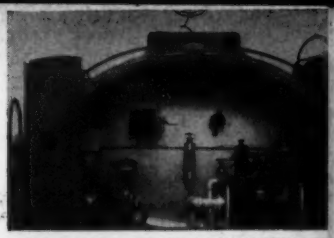
Wife: "Dear, it's just a year since our honeymoon, when we spent that glorious day on the sand."

Husband: "Yes, and we little thought then we'd be spending our first anniversary on the rocks."

ONLY

Smithco

gives you a 2000 GALLON FIREFIGHTER



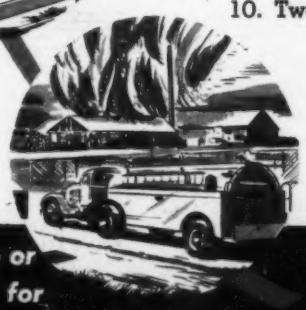
the NEW Smithco FIREFIGHTER

. . . designed especially for suburban and rural communities with limited water supply

The new Smithco Firefighter delivers the goods. No rural or suburban community can afford to be without it. Only Smithco gives you a 2000 gallon carrier plus all these extra features.

1. Hale Type FZZ Pump—60 to 150 G. P. M. @ 90 to 30# Pressure
2. 1500 Watt 110 Volt A. C. Light Plant
3. Three 250 Watt Floodlights, Cable, Adapters, etc.
4. Two 12′ Aluminum Pike Poles
5. One 10′ Aluminum Folding Ladder
6. Two 10′ Sections of 2″ Suction Hose with Quick Detachable Couplings
7. Three hundred feet of 1½″ Underwriters "DJ" Hose
8. Two hundred and fifty feet of ¾″ Booster Hose
9. One ¾″ Mystery Fog Nozzle
10. Two 1½″ Mystery Fog Nozzles
11. One 1½″ Siamese Connection
12. One 24′ Aluminum Extension Ladder
13. Four Rubber Rainsuits and Hats
14. Two 15-pound CO_2 Extinguishers
15. One Pioneer Rack with Axe, Pick and Shovel
16. Two 5-Gallon Fuel Cans

RECOMMENDED TRACTOR—F7 or F8 Ford, WC-20T White or Equal



Phone, wire or write today for

L. B. SMITH, Inc.

CAMP HILL PA SYRACUSE N Y PHILADELPHIA PA

Coordinated Attack

(*Continued from page 264*)

ment, wet water finds its greatest effectiveness when used in combination with small, maneuverable hose lines and fog appliances and fittings. With masks to help the fireman penetrate smoke charged areas; small hose to speed his getting water on the heart of fire; water fog and wet water to make that water as an extinguishing medium "good to the last drop," we have, with a single exception, completed the attack quintet previously recommended for cutting down the fire cycle.

A large portion of fires occur during the night. Also more serious fires occur after dark than during the daytime. For this reason good illumination of the fire ground and premises is essential to help press home the initial attack, and to safeguard attacking personnel.

Portable light and power plants have also a place during daylight attack operations. If sufficiently powered they can be used to drive forcible entry and rescue equipment, as well as smoke ejectors.

At present there is one handicap to the fullest possible use of this facility. It is the same drawback to be found in adequate utilization of respiratory apparatus and equipment: it is not sufficiently available when needed.

Lighting equipment, like air and oxygen breathing equipment, is not standard equipment on all fire apparatus. Although it is being specified for almost all modern ladder trucks, it still must be special-called in many fire departments. This lack is a deficiency that should be corrected, if the fire service is ever to realize maximum efficiency in shortening the fire cycle.

Summing up: *Fire attack* is more essential in fire control than *fire defense*, once fire has gained a hold. Fire attack today—and in the days to come—must be speeded and intensified if the fire service is to hold its own with the widening, complex cycle of fire. In an atomic era, fire attack principles, procedures and equipment of pre-war days cannot hope to curtail the upward trend in fire waste, the losses in lives and property.

Science, and builders of fire apparatus and equipment, have developed and made available new and effective weapons of attack for the fire fighter. Each of these in itself is an essential to efficient fire control. Each, however, can be made still more efficient when properly used with the other related weapons of the fire service. These are: masks and respiratory protective equipment; small hose, with proper fittings and attachments; water carriers and boosters; water fog and fog foam; wet water, and proportioners; and, finally, adequate illumination.

Two things only are needed to make this combination of attack power deadly as a fire killer: they are (1) trained personnel, and (2) attack strategy so designed as to take fullest possible advantage of each of these attributes when used as a team—in combination. In short, a fire department may not enjoy all of these facilities. That should not deter it from developing the best possible techniques for using such facilities as it has, to accelerate the attack. The strategy and technique can be further revised and refined as the remaining facilities are added.

Finally—*attack—attack—attack!*

Gasoline Heaters in New Hazard

Two gasoline heaters exploded in the basement of the $2 million Levittown, L. I., School, under construction, damaging a section of wooden framework on the first floor.

One of the heaters, which hold 30 gallons of gasoline each and are used to keep the cement mixture from freezing, apparently became overheated. Its tank exploded at 11:40 A. M. and sparks from the blast touched off the second heater.

Flames, fed by burning gasoline, damaged some temporary reinforcing timber supports of the first floor and a 50-foot section of plywood framework that was to receive the concrete. All workers on the project escaped injury. The fire was extinguished by the Wantagh and East Meadow Fire Departments.

Commenting on this episode, FIRE ENGINEERING's contributor, James H. Fairbrother, says: "the peculiar thing is that reputable contractors have taken to using these space heaters. This risk was on acreage and would have been localized, even if out of control. Imagine, if you will, a similar user in construction in a congested value district, with the heater cutting loose in the small hours of the morning, with the night watchman taking a snooze. It could be another Sherry-Netherlands fire."

NIEDNER'S
RED CHAIN
FORESTRY HOSE

Just as sure as there are class A, B, and C fires and particular types of extinguishers to cover them—there is a particular type of fire hose for forest and brush fires. The standard throughout the fire field—and in forestry service — is Niedner's "RED CHAIN" Forestry Hose. Packs easily and compactly, and weighs only 45 lbs. per 300 feet. SPECIFY it by brand name—get it through your local dealer or direct.

For indoor protection, specify "RENDEIN" Linen Hose. Both brands made of pure linen by an organization for years devoted exclusively to producing the best in linen fire hose.

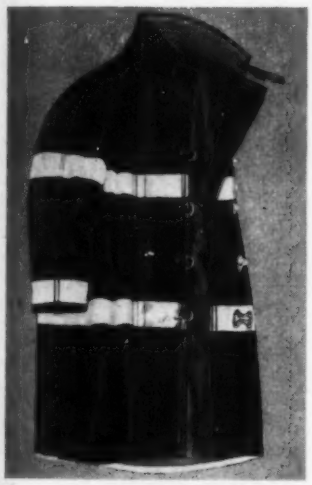
"America's Finest Linen Fire Hose"

CHAS. NIEDNER'S SONS COMPANY
10-12 JAMES STREET MALDEN 48, MASS.

The Original MIDWESTERN Yellow Striped Safety Coat Is Again Available . .

for Men of Action!

Here's Protection and Comfort in Your Hazardous Work of Safeguarding Life and Property Against FIRE!



Modern fire fighting calls for ***specialized*** protective clothing . . . clothing that safeguards the fireman's life on every run . . . clothing that enables him to use his equipment to the fullest advantage.

Every Midwestern product combines the thoughts and suggestions of practical Fire Chiefs and firemen from every section of the country . . . and every purchaser profits from years of Midwestern research and experience. That is why the famous Mackinaw Coat and other Midwestern clothing have embodied in their design every feature necessary for the protection and comfort of firemen.

In our vast selection of crude rubber materials you will find a type of fabric suitable for your climate and needs. The softness and flexibility in the high-grade materials used are your assurance of long time service and comfort. Many Fire Chiefs are now including Midwestern clothing in their regular yearly budget and, by placing your order early, you can be assured of this adequate protection when needed.

For complete information, have your Midwestern dealer show you our new garments now manufactured from crude rubber compounds. A letter to the factory will also bring you material samples for your inspection.

We now have available: White, Ivory and Brown crude rubber coats for Chiefs, Assistants and other officers; also all sizes short and ¾ length felt lined Firemen's boots for immediate shipment.

NONE GENUINE WITHOUT THIS TRADE MARK

MIDWESTERN MFG. CO., Mackinaw, Illinois

Manufacturers of the Famous **MACKINAW Coats**

Detroit Fires

(*Continued from page 273*)

9:02 P. M. 2-2: 2159 (second alarm). Engines 10, 15, 34; Ladder 22; Battalion Chief 5; Ambulance; Light Unit; Bureau Chiefs.
9:06 P. M. 3-3: 2159 (third alarm). Engines 31, 33; Ladder 12.
9:07 P. M. 4-4: 2159 (fourth alarm). Engines 8, 12; Ladder 9.
9:08 P. M. 5-5: 2159 (fifth alarm). Engines 42, 3.
9:10 P. M. Rescue 1 dispatched to fire.

Boxes 2163, 2172 and 2216 in the vicinity were pulled but not sent out to the Department:

Companies relocated: Engines 39/22, 11/27, 47/39. Ladder 2/4 (later Ladder 19 was sent to Ladder 4's quarters when Ladder 2 was disabled) and Ladder 14/8. Battalion Chief 8/7. Extra companies placed in service: Engines 12-X/12, 28-X/42, 13-X/33, 37-X/37, and 18-X/31.

Period of operations, 7 hours, 47 minutes.

The final workout came on January 20. At 9:10 P. M., a report was received of a fire at 1548 Franklin Street in a building occupied by the Standard Metals Corporation. Box 932, Orleans and Franklin (a water front location) was transmitted bringing Engines 9, 6, 11 and 16 (Fireboat John Kendall), Ladders 2 and 6, Battalion Chief 8, Rescue 1, and High Pressure 2. The second alarm was radioed from Chief 8's car and brought Engines 3, 7, 4, Ladder 1, Chief of Battalion 1, Rescue 2, and High Pressure 1, with Ambulance and Light Unit. Companies relocating: Engines 39/6, 12-X/9; Ladder 9/2, and Chief of Battalion 2/1.

Damage to building and stocks was estimated at $40,000. Period of operation, 4 hours, 20 minutes.

Hotel Fire

(*Continued from page 272*)

fire. Two men are quoted as saying that they groped their way down from the third floor after being aroused by screams, and that they endeavored to fight the fire "but found neither of the extinguishers they tried to use in working order." A hotel bartender ran from his third floor room and is said to have turned on the bell alarm on the second floor on his way out of the structure. The accounts of all survivors agree on the degree to which fire had command of the upper floor before an alarm was sounded. At one stage, firemen were aided by several college students in erecting ladders.

Bodies of all six of the victims were not recovered for nearly a week after the fire, until firemen and others searching the icy ruins had the aid of power equipment. No reports of serious injuries to fire fighters were received although both those who worked on the fire and those who stood fast in the cold suffered from frost bite.

EDITOR'S NOTE: FIRE ENGINEERING is indebted for the material on which this report is based to Fire Chief Rod Porter, of Marshfield, Wis., and the Ripon Commonwealth, Ripon, Wis.

Foam Fire Protection

(*Continued from page 276*)

discharge from the sprinkler heads will serve to cool structural members and equipment, and in so doing will effectively aid in combating fire, and without seriously damaging the foam blanket on the floors.

Several persons assisted the writer in the preparation of the design of the fire protection facilities described. Of these, the following men are deemed worthy of special thanks for their efforts and contributions: Mr. L. W. Boerner, Chief Engineer of the National Foam Systems, Inc., West Chester, Pennsylvania; Mr. C. B. Miller, Vice President of Automatic Sprinkler Corporation of America, Youngstown, Ohio; Mr. H. N. Rider, Manager of Technical Division of the same.

Arlington's Communication System Condemned

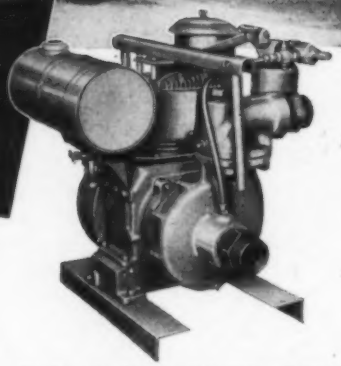
The present fire alarm system of Arlington, Va., is "totally inadequate, dangerous and inefficient," the Arlington County Firemen's Association believes.

Critics recommend a fire alarm communications center staffed by firemen, set up to handle emergency calls instead of through the regular police switchboard as at present. Two firemen should be detailed to handle communications on the police board until a proper communications center can be set up, they urge.

The Association has agreed to a study of the cost of installing two-way radio equipment on Arlington fire apparatus.

IRVING JOHNSON

FOR *Effective* FIRE FIGHTING



THE DUAL FIRE FIGHTER

The Gorman-Rupp Dual Fire Fighter Pump is designed especially for fire fighting requirements. It gets water to the fire under difficult conditions -- maintains constant high pressure -- works indefinitely without a stoppage. The quickest priming, fastest pumping, "never-say-die" pump made. It's always on the job. Used for FIGHTING FIRES DIRECT it throws 100 GPM at 70 lbs. or 80 GPM at 80 lbs. pressure.

Extremely valuable as a relay or booster pump delivering as much as 175 GPM over a 30 to 50 foot hill through a 300 foot 2½ inch hose.

Easily carried to a source of water inaccessible to the big pumper. It weighs only 155 pounds.

Use it for dewatering purposes and save possible costly damage to the expensive truck pumper.

Positive acting exhaust priming in 15 to 30 seconds -- no time-consuming adjustments between priming and pumping. Little or no maintenance. Surprisingly low cost.

Write for Bulletin FD-3 . . . Some territories still open to recognized fire fighting equipment distributors.

THE GORMAN-RUPP COMPANY

305 BOWMAN STREET · MANSFIELD, OHIO

FOR

FLAMMABLE LIQUID AND GAS FIRES....

...WHEN DISASTER THREATENS..

FIONEERS OF DRY CHEMICAL
ANSUL
FIRE EXTINGUISHING EQUIPMENT

DRY CHEMICAL FIRE TRUCKS

...YOUR *BEST* PROTECTION

In the event of a fire emergency — not minutes — but FRACTIONS OF SECONDS, count. And the split-second fire stopping power of Ansul Dry Chemical can turn a headline disaster into a routine operation.

The Ansul Dry Chemical Fire Truck is a product of combined chemical and engineering research. The greater effectiveness of Ansul Fire Extinguishing Equipment, on flammable liquid fires, has been established by repeated tests conducted by nationally recognized approval laboratories . . . and proved conclusively by the broad preference for Ansul Fire Extinguishers on the part of the Petroleum Industry.

Regardless of your present equipment . . . type or quantity . . . an Ansul Dry Chemical Fire Truck provides the FASTER FIRE-STOPPING POWER you need during the critical seconds when disaster is in the balance.

Get the facts. Send for your copy of specifications and copy of File No. 412. You'll also receive our latest literature with comparative rating charts for the various types of fire extinguishers.

ANSUL CHEMICAL COMPANY

FIRE EXTINGUISHER DIVISION, MARINETTE, WISCONSIN

DISTRIBUTORS IN PRINCIPAL CITIES IN THE UNITED STATES, CANADA, AND OTHER COUNTRIES

World Wide Fire News

By Roi B. Woolley

Miracle Saves 33 in Air Liner Collision

Fire Chief Milton Fisher of the Mitchel Air Base, Mitchel Field, Hempstead, L. I., and the Base's commanding officer, Col. Thomas C. Musgrave, and his aides, still look upon as a miracle the near-catastrophe that occurred over Long Island on the afternoon of Jan. 30 last when two planes—a London-bound Constellation plane with twenty-three passengers and crew of ten, was struck by a Cessna 140 private plane, 4,000 feet over Port Washington, L. I., killing both the latter's occupants, but miraculously sparing the larger ship and its precious cargo.

What caused the little two seater to embed itself in the fuselage of the Pan American World Airways four-engined Constellation will never be known. The crash came only a few minutes after the big ship had left LaGuardia Airport on its long journey. The wreckage indicates that the lighter plane evidently dove almost directly down onto the bigger one, striking it fortunately in about the only place that would leave the latter still navigable—in the galley section between the passenger compartment and the nose of the plane, where are located some of the ship's berths.

Portions of the smaller plane remained embedded in the fifteen foot hole atop of the Constellation. The single engine of the Cessna, its propeller, the forward part of the fuselage, the body of one victim and part of the body of the other were wedged in the larger ship. The remaining portion of the second victim fell to a rooftop in Port Washington, while bits of the plane were scattered over a two-mile area in that vicinity.

The collision put the Constellation's radio out of commission and its Captain George Knuth, was unable to communicate with either LaGuardia, or nearby Mitchel Air Base.

Notwithstanding this handicap, the Captain and his crew successfully brought the ship down on the runway of Mitchel Field Airport with its grotesque outboard cargo, ten miles away from the scene of the collision.

Mitchel Air Force personnel, alerted when it was observed that the big ship was headed in for an emergency landing, marvelled at Captain Knuth's feat in bringing his plane safely in despite the impediment and the fact that two tires blew out in the landing. Damage to the plane from the sky collision was considerable, but no fire ensued and there was no confusion or panic among the passengers.

No witnesses have been found who saw the accident and the episode will go down in the records as "cause unknown."

* * *

Hot Off the News Ticker

Called the largest construction blasting operation in history, half of a mountainside of solid rock near Bristol, Tenn., where Holston dam is being built, was blown apart when engineers set off 1.3 million pounds of explosives. The detonation was felt as far away as Abingdon, Va., 25 miles distant. . . . Two bombers collided in flight 4000 feet above Barksdale Field, La., Feb. 2 and two men were killled when one plane exploded in the air and the other crashed and exploded on the ground. Five men successfully bailed out after the collision. . . . Three men were injured Jan. 23, 1949, when an explosion touched off by chemicals wrecked an experimental building in a restricted area of an atomic energy works near Richland, Wash. Thirteen others in the concrete structure escaped injury. Authorities refused to disclose the nature of the chemicals but stated no plutonium production was involved. . . . Arsonists were blamed for causing a $50,000 fire that damaged the historic 160-year-old Horsham Inn just outside Philadelphia. . . . The river steamer Manauense was destroyed by a fire in Marajo Foz Bay on the Great Amazon River with loss of life reported at 93 of the 100 persons on board. . . . Burning methane gas in a coal pit at Ostrava, northern Moravia, trapped nineteen miners, sent nine others to hospital with injuries. Five others escaped from the fire, which began Feb. 11th. . . . An explosion in a state highway department laboratory Feb. 12th rocked the University of New Mexico campus, and broke gas mains which ignited. The blast blew out one wall and wrecked the one-story tile structure. No casualties reported. . . . Joseph Devald, 11 of Sea Isle City, N. J., found a 22-cal. cartridge. He put it in a can and was shaking it when it exploded, fragments of the can entering his face and neck. He will recover. . . . About twenty persons were reported killed Feb. 11 and many others injured in an explosion

"SAFETY-FILLS" end spilled-gas fires in service stations

Underwriters' approved nozzle with automatic shut-off eliminates hazardous overflow

In service stations, garages, airports and fleet servicing centers—in outdoor or indoor installations—spilled gas is a serious fire hazard.

Buckeye Safety-Fill Nozzles eliminate dangerous gasoline overflow.

Here's how: when gasoline covers the end of the spout, the formation of a vacuum causes the main valve to close automatically—even though the nozzle is manually held open—and the flow of gasoline stops immediately.

With Buckeye Safety-Fills, there is no guessing when the tank is full, even at night or under noisy conditions. Servicing is safely accomplished at maximum speed.

Buckeye

Manufacturers of a complete line of Fire Fighting Equipment

BUCKEYE IRON & BRASS WORKS, Dept. E
P. O. Box 883, Dayton 1, Ohio

Please send complete details on Buckeye Safety-Fills.

NAME_____

ADDRESS_____

CITY_____ STATE_____

at the Shih Cheng Government military arsenal, six miles north of Canton, China. . . . The Putumayo River Town of Leguizano, Colombia, was completely destroyed by fire Feb. 3, 1949. Two lives were lost and fifteen persons seriously injured. Only the Naval installations of the Government were saved. . . . The Navy's giant plane, "The Constitution," carrying 90 persons—largest passenger load ever to span the American continent in an airplane, flew nonstop from Moffett Field, Calif., to National Airport, Washington, in 9:36 hours. Ship has fuel capacity of 10,000 gallons. A "flying tank wagon" indeed! . . . In North Hollywood, fire destroyed valuable collection of Lindley S. Bothwell, including thirty-one autos and horse drawn vehicles valued at $50,000. . . . A short circuit in the wiring of the Iowa state house Christmas tree on the main floor of the rotunda ignited it Jan. 5, 1949, the flames shooting high in the air. A state house electrician extinguished the blaze which did no more damage than smudge the ceiling (thanks Earle Robinson). . . . Irvington, N. J., uses old O.C.D. air-raid sirens to summon off-duty firemen to scene of a major fire. So, too, does Providence, we're told. . . . Consolidated Vultee Aircraft Corp. said, Jan. 29th, a B-36 superbomber dropped two 42,000 pound "earthquake bombs" on a bombing range. The 84,000 pound bomb load—heaviest ever carried by a plane—was flown from Carswell Base, Texas, to Muroc, Calif. Air Base and return, non-stop in the operation.

* * *

Fire Razes Mindanao City

A fire of undetermined origin Feb. 5th was reported to have destroyed half of Cotabato, provincial capital on the southwest coast of Mindanao Island. The Philippine Red Cross reported that 10,000 people were homeless as a result of the fire (the city is inhabited mostly by Moros; its population has been estimated at 25,000).

The office of the Provincial Governor estimated the damage at 8 million pesos, or $4 million. Red Cross estimates were half that figure. The only casualty reported was priest who was said to have perished when a monastery was engulfed by the flames.

Bogan to Enlarge His Department

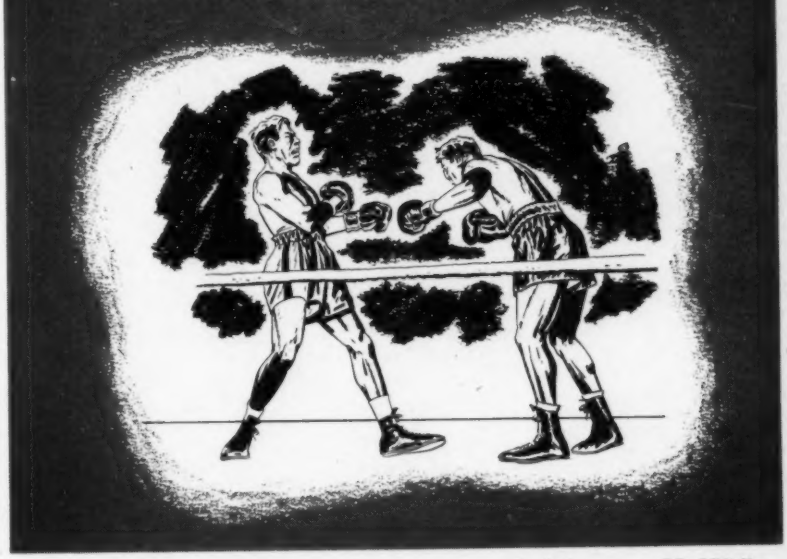
Robert A. Bogan, Chief of the Baton Rouge, La., Fire Department since 1927, former president of the International Association of Fire Chiefs and the Louisiana Firemen's Association, will continue in his post as head of the Baton Rouge Fire Department under the new city-parish government which went into effect in that city January 1, 1949.

Under the new charter, the fire department will have increased responsibilities for protecting greater Baton Rouge, and in addition must be prepared to render mutual assistance to areas outside the greatly expanded urban limits.

Material increases in personnel and equipment of the department are planned, together with augmented training program and other improvements to afford the necessary protection to the growing city and to bring about most favorable insurance classifications.

WATEROUS presents...

"FAMOUS FIGHTING HEARTS"

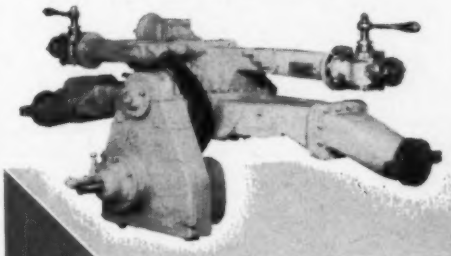


Luis Firpo, 27, 216 lbs. Jack Dempsey, 28, 192 lbs.

DEMPSEY vs. FIRPO *Sept. 14, 1923, Polo Grounds, New York* **FIRST, Firpo knocked Dempsey to his knees; Jack popped up and knocked Firpo down SIX times. Firpo recovered and belted Dempsey out of the ring. In round two, just fifty seconds had gone by when Jack's terrific right kayoed Firpo for ten minutes! These scrappers had real fighting hearts.** ***For the same quality, you'll find WATEROUS Fire pumps on several leading makes of fire apparatus.***

For a quick knockout or a long fight you can depend on WATEROUS. These pumps come from a long line of worthy predecessors. They were designed by experienced engineers, built by craftsmen with long years of priceless experience and backed by a well-stocked parts department.

Insist on a WATEROUS on your next piece of fire apparatus. This pump will stay in condition and always be ready for a grueling fight.



SINCE Waterous Dependable 1886

WATEROUS

FIRE PUMPS

WATEROUS COMPANY · ST. PAUL, MINN.

HAND PORTABLE, DRY CHEMICAL

5 lb. - 10 lb. - 20 lb. - 25 lb.

FIRE EXTINGUISHERS

THE MOST COMPLETE LINE ON THE MARKET TODAY!

Safety First's complete new line of hand portable dry chemical fire extinguishers has been scientifically designed and developed for simplicity of operation and dependable, highly effective fire protection at all times.

Safety Firstcan be used either indoors or out, with complete safety. There are no dangerous gases, no choking fumes to harm lungs, eyes or clothes.

Safety First's Free-Flo Dry Chemical can be used on the most delicate of fabrics, will not stain or mar wood or metal surfaces, will not damage the most delicate electrical equipment or wiring.

Unaffected by time or temperature, Safety First is always ready for any emergency. Will not freeze, will not evaporate and will not cake or harden. Absolutely unaffected by heat up to 150° F. or extreme cold, dryness or dampness. Keep safe with Safety First.

SAFETY FIRST COMPANY

ELMSFORD, NEW YORK

"Mushroom" City Well Protected

In Orangeburg, Rockland County, N. Y., about 20 miles from New York, there sprung up overnight during World War II, Shanks Village. It was named in memory of General David C. Shanks, who commanded the New Pork Port of Embarkation in World War I and who

Chief Wallace P. Cavanaugh

wrote a book on that subject in which he featured the then Lieutenant John J. McCarthy, NYFD, now retired and serving as Fire Consultant to the New York State Hotel Association.

The village is now a thriving community of 6,000 of which some 1,500 are Columbia University students under the GI Bill of Rights. The community embraces 32 square miles; 600 frame houses; 60 warehouses filled with war assets; and 80 permanent dwellings for officers from Fort Jay, USA, Governors Island—the HQ of the Department of the East.

Shanks Village water supply is in 8, 10, 12 and 16 inch mains from Spring Valley nearby. The village has three lofty gravity tanks of 250,000 gallons each. Fire fighting personnel of 18 are paid. There are 50 call men at $1.08 an hour when working. There are two fire stations with one 500 GPM pumper, one 500 GPM, and one 300 prairie truck. The village has 72 boxes on poles which strike alarms on the village siren. Last year there were 78 fires with a loss of $5,000.

Federal Public Housing Administration has jurisdiction. Three years ago, the government appointed Wallace P. Cavanaugh Fire Chief. He had been there before the war and when he returned he was fortified with an exceptionally well-equipped background of experience at home and abroad. He is a native of Rutherford, N. J. He was in the Rahway Fire Department 9 years and attended Union County Fire College, later becoming the Assistant Chief of Raritan Arsenal for 18 months. At Camp Kilmer, he organized its fire brigade of 114 civilian smoke eaters; then

to Carteret (N. J.) Ordnance Motor Reception Park as Chief. The principal occupation of 800 men was the processing of motor vehicles for war service overseas. The park contained 32 buildings. Other hazards were: 350,000 gallons of gasoline and 10,000 gallons of "alky" and anti-freeze.

Subsequent assignments took Chief Cavanaugh to Fort Wadsworth, S. I., with 1,500 soldiers in barracks and Miller Field nearby where Sea Breeze Hospital is also located; then to Camp Shanks where he had 124 civilian firemen to whom he taught fire prevention. There were then 1,000 structures and 40,000 military personnel who depended on his brand of fire protection.

The Army pressed Chief Cavanaugh into service, and he took over the command of the Fire School of 400 trainees at Fort Belvoir, Va.; next, Fort McHenry with 32 men and a course in ship and oil fires under Comdr. Layman, USCG. At Indian Town Gap, Pa., he was screened and sent overseas for 14 months as Fire Chief of the 1217th Fire Fighting Unit. He was in charge of all equipment and appliances at the International Military Tribunal at Nuremberg, Germany, and also at Grand Hotel where Generals Eisenhower and Patton were billeted. He returned to Camp Shanks after the war and was transferred from the Army Post Engineers to Federal Housing to command fire and safety forces. JERRY DALY.

Mingo Gets New Dual Pressure Pumper

A new pumper featuring a pump designed to operate in high and low pressure passed preliminary tests of the Mingo Fire Department, Mingo Junction, Ohio. The tests were witnessed by a number of fire chiefs from neighboring communities.

The unit, which has a 500-GPM capacity, is especially geared for Mingo's hilly terrain.

The pumping system will develop up to 400 PSI, using guntype nozzle; the booster tank carries 400 gallons of water (or treated water) a requisite because the unit protects an area of 9½ miles including Steubenville Township and the facilities of the Wheeling Steel Corp.

The apparatus was purchased with contributions made by the Wheeling Steel Corp., the Wabash Railroad, the fire department, and the trade-in allowance for old equipment with the balance coming from city funds.

The Mingo Fire Department is headed by Chief Joseph A. Grantonic. In addition to the new pumper, the department has a second 750 GPM unit equipped with 2-way radio.

A Correction

The February, 1949, issue of FIRE ENGINEERING contained a copy of a letter to the editor published under the caption "A Professional Job." This was signed "Samuel R. Foster" Captain, Navesink, N. J., Hook & Ladder Co. No. 1.

This letter should have been signed "Captain Samuel R. Posten" of the same company, to whom we apologize for the typographical error.

THE ONLY TWO STAGE PUMP WITH 3 STAGE PERFORMANCE

Barton-American DUPLEX MULTI-STAGE Centrifugal Fire Pump

Two independent pumps driven by individual gear trains —breakdown of one still leaves one in operation — makes possible three operating characteristics.

1. Large capacities at normal pressures delivered through the capacity pump only.

2. Normal high pressures delivered through the high pressure pump only.

3. Pressures as high as 400 pounds are delivered with both pumps operating in series and at LOW engine speed.

The Barton-American Duplex-Multistage is the ONLY fire pump that has three distinct and separate operating characteristics, yet has only TWO impellers.

Positive one point lubrication. Ball bearings and gears are all located in pump transmission case, using same grade of oil as truck engine. No grease cups to be overlooked — no water lubricated bearings to run dry and foil.

Delivers 400 pounds pressure for fog gun service.

AMERICAN-MARSH PUMPS

BATTLE CREEK MICHIGAN U. S. A.

IN CANADA: C. E. HICKEY & SONS, LTD., HAMILTON, ONTARIO

How Good!

Can a Hose Dryer *be?*

Good enough, we'd say, to keep winning friends and to influence new station design. Day after day, week after week, year in and year out, new and old friends pass along such comments as "best piece of equipment we have" — "wouldn't be without it" — "pays its own way" and other expressions of approval equally flattering.

Good enough, too, that according to our recent survey it is specified in over 70% of new engine houses to be built this year. And good enough so that these cities, among hundreds of others in recent months, have "SWITCHED TO CIRCUL-AIR":—

Allentown • Anniston • Benton Harbor • Boston Champaign • Columbia, S. C. • Concord, N. C. Dallas, Ore. • Erie • Edgewater, N. J. • Grand Rapids • Greensboro • Kalamazoo (Twp.) • Lake Wales • Louisville • Monroe • New Britain Omaha • Oak Ridge • Peekskill • St. Petersburg San Leandro • Traverse City • Utica

CIRCUL-AIR THE AIR-CONDITIONING

FIRE HOSE DRYER

- Dries hose in a few hours
- Saves space—fits in any corner
- Keeps all hose ready for service
- Makes good hose last longer
- Reduces new building costs
- Improves station design
- Dries fire clothing, too

WRITE FOR FREE CATALOG

THE CIRCUL-AIR CORPORATION

575 East Milwaukee St.

DETROIT 2 MICHIGAN

Short Cuts and Gadgets

NAVY IDEA TO PREVENT OVERHEAD DOOR ACCIDENTS

Some time ago FIRE ENGINEERING published an account of the fatal injuries received by a tillerman of a ladder truck when his head struck an overhead door. This message was taken to heart by the Headquarters, Fifth Naval District, Norfolk, Va., which found at least a partial solution for the prevention of such accidents.

In the words of Francis L. Brannigan, Assistant Fire Marshal, "having read of the unfortunate death of the tillerman . . . because of the fact that an overhead door did not fully open, we have installed a strip of cat's eye reflectors across the bottom of the door used by our aerial truck. When the door is fully open the cat's eyes cannot be seen. If they are visible, they immediately indicate to the officer, chauffeur and tillerman the fact that the door is not completely open."

Thank you, Marshal Brannigan!

* * *

IDEA FOR A HOSE LOAD

The technique of loading hose for quick, efficient stretches, or lays, has had considerable attention the last few years. There are not very many hose loads that haven't been tried and the methods in use today differ about as much as the difference in fire apparatus design and construction.

An encouraging factor in reviewing this field of fire control is the ingeniousness and inventiveness of the volunteers —the lads who really have to make hose loads work—on else. For this reason, we are always interested in any suggestions and ideas sent us by reader members of volunteer departments.

The latest such contribution comes from Robert Schoof of the River Forest Fire Department, River Forest, Ill. Some readers will recognize it as nothing new, but to others it may offer ideas. For this reason we publish Brother Schoof's letter. He says:

"Maybe this load has been presented before, but if not, it can be used by a volunteer, or paid, or part-paid department. It is intended for use when laying from fire to hydrant (ie: reverse lay or stretch).

By way of explaining the idea, I will use a pumper setup with three men riding the rig: officer, engineer or driver and the hoseman. The load consists of one bank of 600 to 800 feet of 2½-in. hose, siamesed into two packs of 1½-in. hose, 150 ft. of 1½-in. hose in each pack. Only one pack of 1½-in. hose is attached to the siamese. This will be designated as line "A".

Another bank of 2½-in. hose with pipe attached, about 800 feet in all, we will designate as line "B".

Upon arrival at the fire, the officer gives the order to "lay-in" or "stretch in," the hoseman riding the rear step pulls both packs of 1½-in. hose, plus two lengths of attached 2½-in hose. This is line "A". He also pulls two lengths of 2½-in. hose with pipe attached. This is line "B".

The hoseman then gives the "high sign" to the engineer, who proceeds to the hydrant. Both "A" and "B" lines are now flaking or "peeling" themselves off the hose bed, forming two parallel lines of 2½-in. hose, which will not tangle together.

After hooking up to the hydrant, the engineer pulls off two lengths of 2½-in. hose of line "A," breaks the coupling and attaches it to a discharge port on the pumper. Upon the order, or prearranged verbal agreement, this line is charged to desired pressure. Any kinks in the line are straightened out at this time.

Next, this same man pulls two lengths of 2½-in. hose from line "B", breaks the coupling and hooks up to the pumper. This line is not charged until ordered.

The main idea of line "B" is for use as a "back-up" line, which if needed, can be put into operation at once. Line "B" can be laid in six seconds upon arrival at a fire, whereas if laid later the line has to be dragged from the pumper to the fire, involving manpower and time—and nearly every department lacks manpower.

Getting back to arrival at the fire, the officer naturally makes his "size-up." If this shows that the problem is a simple one, the officer can then also help to "stretch in" the line.

* * *

CREW TO PILOT SIGNAL

One of the ideas that came out of the Memphis Conference is a "push-button and buzzer for emergency signal from the men riding the tailboard of a pumper or other truck, to the driver."

More on the Hazards of Fluorescent Lamps

In its February, 1949, issue, FIRE ENGINEERING published over the name of W. E. Rossnagel of the Consolidated Edison Company, New York City, an item warning against the hazard of burned out fluorescent lamps. The hazard, Mr. Rossnagel pointed out, is present in two ways (1) by inhaling the dust from the coatings on the inside surface of the glass tube, and (2) by the introduction of this material into the skin as a result of lacerations caused by broken fragments of the coated glass. The coating, known as "phosphor," contains beryllium, which is a predominant cause of the poisoning.

Since this warning was published numerous other authorities have repeated it. Further evidence received by this journal since that notice warrants repetition of the warning.

One of the latest cases is that of 6-year-old John Granger of Guttenberg, N. J., who found a burned out fluorescent tube in a trash heap last summer and decided that the long, white stick of glass would make a good plaything. A few days later he stumbled while at play on the grounds of the Washington School in Union City and the tube shattered in his hands.

The lad's parents, Mr. and Mrs. David Granger, in Guttenberg, took him to the North Hudson Hospital in Weehawken where the wounds in both palms were

cleaned and stitched. But as months passed the boy's hands refused to heal. Doctors in Weehawken and New York, reports said, decided recently that John is suffering from a rare case of "beryllium poisoning" and may have to undergo plastic surgery in an attempt to graft healthy flesh on his palms.

Thus far, no record has been found where a fireman has been infected, or is suffering in any way from contact with broken fluorescent lamps. In view of the continued increase in fluorescent lighting, the fire service is cautioned against contact with such tubes, particularly in broken condition.

Connecticut Has Good Forest Fire Record

The Connecticut State Forestry Department had its most successful year during 1948 in its history in keeping down losses from forest fires, according to George C. Waldo, of Fairfield, chairman of the Connecticut State Park and Forest Commission.

The average loss per forest fire during 1948, according to Mr. Waldo, was 2.5 acres, which is the lowest in the history of the Forestry Department and one of the lowest in the nation.

Commenting on a recently published report of the Connecticut Forest and Park Commission, a private and voluntary organization of persons interested in Connecticut woodlands, Mr. Waldo said:

"The report says that our Connecticut system of forest fire prevention and control is good, but can be improved. It is rather amusing that cool appraisal came out just at the moment when the United States Forestry Service, which furnishes part of the money for forest fire prevention work in Connecticut and regularly checks up on on the use of that money, is enthusiastically praising the record of Connecticut.

"A previous investigation of Connecticut's firefighting service made by the U. S. Forestry Department in 1938, disclosed a number of apparent weaknesses or omissions in Connecticut's system and recommended corrections. The present report finds that all of these recommendations have been carried out and gives the Department fine praise noting that the greatest improvement has been made in the past two or three years.

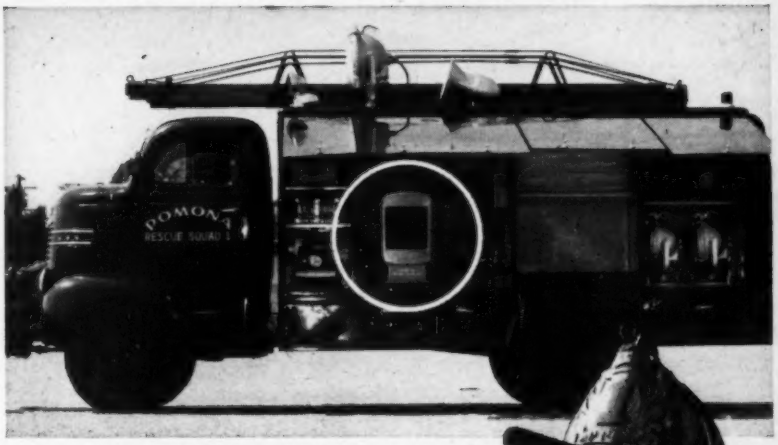
"I think the State of Connecticut should give credit to acting Forester Foster Schreeder, Fire Technician Milton Stocking and Administrative Director Donald Mathews. The latter is cited in the government's report for having done yeoman work in getting the Department its desired equipment."

TOM MAGNER.

Approve Forest Fire Pact

The Vermont Legislature has approved the northeastern forest fire protection compact. The measure is expected to be signed by Governor Ernest W. Gibson.

The bill, which is the outcome of the New England forest fire holocaust of October, 1947, provides interstate cooperative forest fire control for the six New England states, New York and the Canadian border. The State of New York has already approved the pact.



Rescue Truck, City of Pomona Fire Department, Pomona, California.

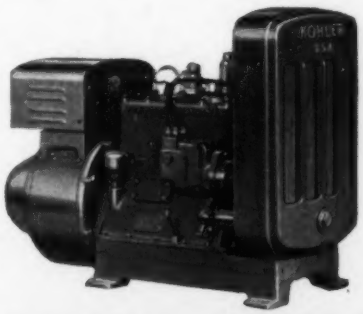
Speed up fire-fighting and rescue work with

KOHLER
Electric Plants

Two 3KW Kohler Electric Plants help increase the efficiency of the fire department rescue truck at Pomona, California. The plants are hooked up for automatic multiple use or can be operated individually for floodlights at night fires, salvage equipment, two-way radio telephone or a loud speaker system for directing fire fighting or rescue work.

Kohler Electric Plants, rugged, reliable, easy to care for, play a part of major importance in the modern equipment of fire departments throughout the nation. Sizes: 750 watts to 10 KW. Write for illustrated folder E-22.

Kohler Co., Kohler, Wisconsin. Established 1873.



Kohler Electric Plant 3A21, 3KW, 115 volt AC. Automatic start and stop. Length 41", width 16", height 27¼".

KOHLER OF KOHLER

PLUMBING FIXTURES • HEATING EQUIPMENT • ELECTRIC PLANTS

FOR MEMORIAL DAY
GRAVE MARKERS
In time-proof solid bronze and in two styles as shown.

U. S. Flags for markers.

CAIRNS
Outfitters to Firemen Since 1836

PARADE BANNERS

Made of finest quality heavy weight banner material, interlined with sateen back; standard size, 40" x 60", in any standard color desired; lettering and design embroidered or painted; polished pole and cross-bar, with solid brass fittings and ornament; base, carrying belt and waterproof cover included; available also in other sizes.

Write for Catalog 331

CAIRNS & BRO., Inc.
ALLWOOD, CLIFTON, N. J.

Engine Pressure

To the Editor:

An engine is pumping through two lines of 2½-inch hose, one 300 feet long and equipped with 1⅛-inch tip operated from the street, and the other 400 feet long equipped with 1¼-inch tip, stretched up a ladder to the fourth floor of a building. Nozzle pressure on the second line is 50 pounds. What will be the engine pressure?

V. O. B.

Answer: Assume 12 feet per floor as the height of the floors in the building.

The nozzle is then 36 feet above the engine outlet.

The back pressure is $36 \times .434$, or 15.624 pounds.

The nozzle pressure is 50 pounds.

Discharge $= 29.7 \times 1¼ \times 1¼ \times \sqrt{50}$ = 328 gallons per minute approximately.

Friction loss in 100 feet of 2½-inch hose carrying 328 gallons per minute $= 2 \times 3.28 \times 3.28 + 3.28$, or 25 pounds approximately.

The friction loss in 400 feet is 4×25, or 100 pounds.

Then the engine pressure = nozzle pressure + friction loss + back pressure = 50 + 100 + 15.6 = 165.6, or 166 pounds approximately.

With the engine pressure known, the pressure at the 1⅛-inch tip on the street line can be readily solved, although it's not asked for in the problem.

Engine Pressure on Branched Layout

To the Editor:

A pumper is pumping through 500 feet of 3-inch hose to a second pumper from which two lines of 2½-inch hose are stretched; one line is 200 feet long and branched into two 100-foot lines of 1½-inch hose each equipped with ½-inch nozzle; the other line is 300 feet long and equipped with a 1-inch tip. Nozzle pressure at each of the three tips is 50 pounds.

What pressure is required at each pump? Should largest capacity pump be at source of supply?

F. H. S.

Answer: The discharge from the ½-inch nozzle at 50 pounds pressure is 52.5 gallons per minute $(29.7 \times ½ \times ½ \times \sqrt{50})$.

Friction loss in 100 feet of 1½-inch hose carrying 52.5 gallons per minute $= 40 \times (2Q^2 + 1/6\,Q) \times C$, where $Q = 52.5 \div 100 = .525$, and C, a factor, to be used with ½-inch nozzle, is .4.

Then the friction loss = 10.22 pounds per 100 feet. Thus the pressure at the wye will be 50 + 10.22, or 60.22 pounds.

The flow in the 2½-inch branched line will be 2×52.5, or 105 gallons per minute.

The friction loss in 200 feet will be $2 \times 3.255 = 6.51$ pounds.

The pressure at Engine No. 2 will then be 60.22 + 6.51 = 66.73 pounds.

The discharge from a 1-inch nozzle at 50 pounds pressure = 209.979, or 210 gallons per minute.

The friction loss in 100 feet of 2½-inch hose carrying 210 gallons per minute $= 2 \times 2.1 \times 2.1 + 2.1 = 10.92$, or 11 pounds.

The friction loss in 300 feet $= 3 \times 11$, or 33 pounds.

Engine pressure at Engine No. 2 would therefore be 50 pounds + 33 pounds, or 83 pounds.

This does not check with the engine pressure on branched line. Therefore the discharge valve on the 200-foot branched line must be throttled down to give 66.73 pounds, as the pressure at the engine for taking care of the single 300-foot line of 2½-inch hose would have to be 83 pounds.

The total flow through the 3-inch hose = 105 + 210 = 315 gallons per minute.

The friction loss in 100 feet of 2½-inch hose carrying 315 gallons per minute $= 2 \times 3.15 \times 3.15 + 3.15 =$ 22.995.

The friction loss in 100 feet of 3-inch hose carrying the same quantity would be $22.996 \div 2.6 = 8.84$, or 9 pounds approximately.

The friction loss in 500 feet of 3-inch hose would then be 5×9, or 45 pounds.

The pressure at Engine No. 1 will thus be equal to 83 + 45 + 5 (inlet pressure to Engine No. 2) = 133 pounds.

Open Butt Discharge

To the Editor:

Why isn't the interlocking type of coupling used in place of our threaded type?

An engine is pumping at 42 pounds engine pressure through three 800-foot lines of 2½-inch hose open butt. What will be the discharge?

G. V. C.

Answer: The interlocking type of coupling is used in a few fire departments in the United States, but very few. The National Standard Screw Thread is standard with possible 85 per cent of the fire departments in the United States. The National Board of Fire Underwriters have strongly endorsed the use of the National Standard as has also the International Association of Fire Chiefs. We are familiar with quite a number of different types of snap couplings, including the cumbersome one used in Great Britain, and which has two handles for disengaging the lugs. None of them possesses mate-

rial advantage over the screw coupling, and as the latter is much less expensive and at the same time simpler, it is the type that is generally favored by fire departments.

The trend toward National Standard coupling started about 1885, and has been maintained since that time. We cannot hope that some of our large cities, such as New York and Philadelphia, will soon change to the National Standard, for it represents quite an item of cost to change over all hose and hydrant connections. Some of their suburban communities may also be slow to change. But this much may be said: A change from National Standard to the other type of coupling has been unknown in the fire service of this country during the past forty years.

With regard to the question you submit, we assume that the total hose in each line is 800 feet. You have three lines each 800 feet long, and each equipped with 2½-inch open butt. The formula for finding engine pressure on a line of 2½-inch hose, employing open butt, is as follows:

Butt pressure = E.P. ÷ (1.1 + KL), where K is a factor depending upon the hose and nozzle diameters, and is, for 2½-inch hose and 2½-inch open butt, 3.35; L, the number of 50-foot lengths of hose in the line, is 800 ÷ 50, or 16.

Then Butt Pressure
$=42\div(1.1+3.35\times16)$
$=42\div54.7$
$=.76$ pounds.

The discharge $=29.7\times d^2\times\sqrt{P}\times.90$
$=29.7\times2.5\times2.5\times\sqrt{.76}\times.90$
$=29.7\times6.25\times.87\times.90$
$=145.8$ gallons per minute from each line.

There are three lines, and the total discharge will be three times this amount, or 436.4 gallons per minute.

Abbreviated Edition of N.B.F.U. Code

An abbreviated edition of the 1949 National Building Code, prepared for municipalities which feel that their needs can be cared for by a briefer code than the National Building Code, has been prepared by the National Board of Fire Underwriters, 85 John St., New York 7.

Municipal officials, and any persons concerned with building construction, may obtain single copies of the abbreviated code without charge. Any community adopting the code will be supplied with 50 copies without charge and as many additional copies as may be desired for a nominal charge less than the cost of publication.

The abbreviated code provides the same safety standards as the National Building Code. Like it, the abbreviated code is a performance code, and insofar as practicable, within the limits of public safety, permits the use of any material, type of assembly or style of architecture that meets the required standards of strength, stability and fire resistance.

Airforce Fireman Killed

Pfc. William E. Pennington, 20, was instantly killed in February at the Andrews Air Force Base, near Washington, when the fire truck he was driving overturned.

Base officials said the apparatus was heading for a runway to stand by during landing of an airplane. Two other fire fighters on the apparatus received minor injuries. I. W. J.

Featuring
SUPER FLEXIBLE
CAPITAL BRAND
50 years of manufacturing experience is your guaranty that this new Super Flexible fire hose is the best obtainable.
Three grades available. Information and Samples will be furnished on request.
It's a cinch with
CAPITAL BRAND
WRITE US FOR ADDITIONAL INFORMATION
CAPITAL
FIRE EQUIPMENT COMPANY
1014-28th St., Box 1775 Sacramento, California

"ALL-OUT"

DRY CHEMICAL FIRE EXTINGUISHER

EASIER TO HANDLE — lighter in weight by 7 to 15 lbs.

FASTER IN ACTION — 10′ x 10′ pit of blazing gas and oil *all out* in seconds.

PENETRATES CREVICES—completely blankets wide area.

ELIMINATES RE-IGNITION—works in winds and drafts.

NON-TOXIC, NON-CORROSIVE — harmless to everything but fire—including food.

SAFE ON ELECTRICAL FIRES—non-conductive.

FAN SHAPED NOZZLE — ejects flat stream; screens off flame from burning material; safeguards operator.

Only "ALL-OUT" gives *all out* protection. Demonstration anywhere, anytime. Write today for illustrated data.
Model A-16 illustrated, has 15 lb. capacity Model B-10 contains 10 lbs of dry chemical.

Protects the operator as it kills the fire.

Distributors' inquiries invited.

ALL-OUT MFG. CORP.
2 PARK AVENUE, NEW YORK 16, N. Y.

For Practical Discussion of Current Fire Department and Fire Management Problems

ALL YEAR 'ROUND FIREMEN'S TRAINING

THE discussion in this Round Table is a continuation of that which appeared in the January, February and March issues of FIRE ENGINEERING on firemen's training programs.

The generous response from our readers made it necessary to carry the discussion over to this issue.

Readers are invited to send in their comments on this subject or on next month's subject which is described in a box on a subsequent page to Round Table Editor, FIRE ENGINEERING, 24 West 40th Street, New York 18, N. Y.

Discussion of Question

G. R. McAlpine, Chief, Oklahoma City, Okla.: Outside training runs from May 1 through December 15, due entirely to weather conditions. The winter season sets in here about the 15th of December and lets up by May 1st, which gives us about seven and a half months of suitable weather for outside training.

This department holds regular daily inside skull practice using blackboards and small tools, except on Saturday, Sundays or holidays. This training includes the proper use of tools; location of streets, fire hydrants, water mains, buildings such as apartment houses, hotels, theatres, churches, schools, hospitals and large industrial plants in their respective districts. We find this a very useful and practical skull practice.

I believe we as firemen and fire officers have at our disposal unlimited time for practical and technical training, but do we make the best use of this time, and if we don't, whose fault is it? I find men are ready and willing to take part in any type of training that will improve the efficiency of this department.

The chief of the department and his board of chief officers including the fire warden, master mechanic and fire alarm superintendent, should set up dates and times for regular board meetings. Our board, consisting of ten chief officers, meets here on the second and fourth Saturdays of each month.

The purpose of these meetings is to establish basic policies governing the functions of this department, of which training is one. These meetings have a tendency to keep the chief officers united. When they are familiar with the functions and have a voice in changing or establishing the policies, there is more interest.

Training for fire duty is of untold value, and we must never dispense with the conventional operations, but we must come to more practical evolutions in our training.

We must train our men in the practical application of the various extinguishing agents by actually producing simulated fire hazards, such as the use and effect of master streams, how and when to use them; the use of fog; application of foam; wet water; the use of small hose lines; sprinkler system operation; speed of equipment to and from fires; protective clothing for firemen; etc.

The fire station conference method is good and should never be dispensed with. I am of the opinion, however, that there should be a set rule on the length of time, the time of day and general subjects to be covered. These rules should not be interfered with except when there is an emergency.

The Oklahoma City Fire Department has established under a full-time instructor a program applying to the rank and file and which has been set up on as practical basis as possible.

We have provided the facilities for these operations and the drillmaster is in full charge of the overall program, which was set up by the board of chief officers and provided for in a drill manual.

Technical subjects other than water pressure and friction loss are subjects for chief officers and company officers as far as this department is concerned.

When it is all summed up, we have the following:

1. Unification of the policy making body, the chief officers.
2. Company officer training in practical evolutions, public relations, and economical operations.
3. Motor pump operators, drivers, drivers and tillerman on proper mechanical operation and speed.
4. Firemen training on practical evolutions, company skull practice, proper clothing, fire hydrants and

HERE IS THE TOPIC

1. **Are your firemen given outside training and instruction the year round? If not, in what seasons of the year?**
2. **Do they also receive inside training, i.e., lectures and blackboard work, etc., the year round? If not, in what seasons of the year?**
3. **What do you think should be done to improve training in the fire service?**

water mains, buildings and proper use of small tools.

A well laid out program as nearly practical as possible will not only prove efficient but will receive the cooperation of the men and will in the end pay dividends.

We have two requirements, namely, that no visitors be admitted to the meeting and that no information relative to the discussions before the board be released to the public. We keep the minutes which are available to members of the board; these records are kept in the chief's office files.

We believe there are no problems confronting this department which are too big to be solved by ten men with 231 years of experience, as long as we leave personalities out and are fair and honest in our deliberations.

Then comes the company officer referred to by myself as the backbone of this department. If you have a competent well-trained company officer, you have a good company.

We are very much interested in company officer training, not just in handling tools and being able to carry out the various evolutions. Of course, this is important for good company officers to know. But something more important to company officer training, in my opinion, is necessary, such as public relations, how to get along with men, the economical aspects of a fire station, proper care of equipment and apparatus, reports and inspection work. These are some of the bigger things that a company officer has to deal with, so why not give the company officer the training he deserves, and your department efficiency will increase.

We have just concluded a company officer training course of twenty hours dealing with these bigger responsibilities. This course was conducted by three outstanding professors from Oklahoma A. & M. College of Stillwater, Okla.

We confined this training strictly to company officers. Chief officers were not permitted to sit in classes.

This cost us exactly nothing, and in my opinion, is having an effect on the efficiency, courtesy and economical operations of this department, making it possible for the company officer to be head and shoulders above the rank and file.

William S. Allison, Chief of Training, Detroit, Mich.: You might be interested in knowing that in November, 1946, training in the Detroit Fire Department was completely reorganized and placed on a level to include the training of not only the rank and file but the rank of battalion chief and company officers, which brought about the origin of a Training Division comprised of two branches:

1. Administration—charged with instituting all training, to include research and planning.

2. Operations — effectuates training in five major activities, exercising command and/or staff supervision:

a. In-service training—Objective: to combine training with the operation of fire fighting; in other words, "learn by doing."

This function is a combined operation—fire fighting and training—an operation that was made possible by relocating an engine and a ladder company and assigning them to

GOODALL
FIRE HOSE
COTTON RUBBER LINED • Single or Double Jacket

Made to specifications based on years of hose-building experience and progressive fire-fighting requirements. As perfect in quality as it is possible for men and machines to produce.

Jacket of selected long fibre cotton duck withstands extremely hard wear and rough treatment . . . an effective barrier against snagging, puncturing, bursting. The rubber lining is tough, durable, expertly cured. Flexibility and relative light weight assure easier handling and coiling. Made in all standard sizes.

Contact Our Nearest Branch for Details and Prices

GOODALL RUBBER COMPANY
GENERAL OFFICES, MILLS and EXPORT DIVISION, TRENTON, N. J.
Branches: Philadelphia • New York • Boston • Pittsburgh • Chicago • St. Paul • Los Angeles
San Francisco • Seattle • Salt Lake City • Houston • Distributors in Other Principal Cities
Est. 1870

HOWE Fire Truck Equipment to Meet Every Service
Established 1872
HOWE FIRE APPARATUS COMPANY, 1402 West 22nd Street, Anderson, Indiana

BRAXMAR BADGES

Standard for over 69 years

THE BEST BADGE MONEY CAN BUY

BRAXMAR BADGES STANDARD WITH FIREMEN FOR 69 YEARS—WE CAN NOW SUPPLY NICKEL AND CHROME

If you have not yet received our latest circular, we'll be glad to mail one on request.

BRAXMAR BADGES

JOHN O. VEIT
President

C. G. BRAXMAR CO., Inc.
216 E. 45th Street, New York 17, N. Y.

the school where they were organized into a provisional (school) battalion. The personnel of these companies consists of a cadre of carefully screened officers and men who have the faculty to teach and the balance of the numerical company strength is in-training; together, they effect the combined operations of training and fire fighting. The ultimate purpose of this training is to put theory into practice, or "learn by doing" under the precisely controlled conditions found only at a school; in other words, apply the tactics and techniques developed in training to the actual operations at fires. All personnel serves on a 24-hour basis, responding to alarms of fire in their first through fifth alarm districts, which provides the department full utilization of manpower. No fire fighting man-hours are lost —not even in transit—during the course. The in-service training is categorized as follows:

	Training Period	No. of Subjects	Hours of Instructions
Prospective Lieutenants and Prospective Sergeants	13 wks.	48	208
Intermediates (those between basics & prospective officers)	13 "	48	208
Basics (trialmen)	13 "	48	208
Tractor Drivers and Prospective Tr. Drivers	4 "	8	72

b. Officers' training, company grade—Objective: To indoctrinate company officers with a complete treatise on battalion and company administration, to include training management. This indoctrination is given semi-yearly for a period of six days, eight hours a day.

c. Fire engine operators' training —Objective: To provide fire engine operators with standard methods and procedures, to include up-to-date operating techniques. This course is given semi-yearly for a period of six days, four hours a day.

d. Orientation on command and staff level—Objective: To coordinate the efforts of division heads and battalion chiefs on administrative, operational and staff procedures through the medium of organized critiques.

e. On-the-job training—Objective: To provide all members in the fire fighting division with organized scheduled and perpetual training conducted while on duty in the fire station. This training is planned and staff-supervised by the chief of training, effectuated by the office of chief of department, directed by the battalion chiefs who also submit monthly efficiency reports to the chief of training on company officers who are charged with implementing the training.

In summing up our activities, the in-service training administered at the school (putting theory into practice) and the on-the-job training implemented in the fire stations were especially designed to go hand-in-hand. Those who satisfactorily complete the in-service training at the school will have sufficiently developed in instructors' techniques and the art of lesson planning to an extent that they will be a valuable asset to the commanding officers out in the company in effectuating the on-the-job training in accordance with a predetermined plan.

To answer your questions: The Detroit Fire Department does give outside training all year round, with alternate schedules providing for training inside during inclement weather. Inside training is given all year.

To improve training in the fire service, it must be highly organized and carefully planned. Factors to be considered:

1. A school organization with facilities for planning and effectuating the various types of training.
2. To provide courses of study for developing competent instructors.
3. Standardized instructions.
4. Continous research for new developments.
5. Planned curriculum, to include existing and new techniques.
6. Systematically scheduled courses of study.
7. Competent supervision.
8. Inspections—periodically.
9. Evaluate effect by oral, written and performance tests.
10. Recording of progess.

J. F. Finnegan, Chief, Richmond, Va.: We have a drill schedule the year round. This includes inside and outside work. When the weather on a certain day is bad, we then revert to "skull practice."

Each company commander is responsible for the training of his company and is allowed to deviate on bad weather days to lecture on anything he desires that is not covered by the drill schedule. He may also review or instruct his men in any thing that he may deem necessary at any time. However, he must cover and follow the schedule.

We also operate our drill school from May through October. This school handles officers training, recruits, review.

We have started classes for the company officers in which we try to teach each officer to be an intructor. We also plan in the near future to use our drill school staff the year round.

G. E. Hare, Chief, Jacksonville, Fla.: We have a fire department drill school which operates year round. When regular classes are not being held, there is company drill in ladder and hose evolutions, etc.

The inside training is on a voluntary basis and is conducted at the various stations under the direction of the company officers of these stations. It consists chiefly of territory work, boxes, locations of hydrants and streets and prominent buildings, as well as the uses of different equipment.

A planned program that covers every phase and feature of the business of fire fighting, including company drill as well as inside or blackboard work, would greatly improve fire service training.

Frank H. Burns, Chief, Grand Rapids, Mich.: Firemen in Grand Rapids are given both outside and inside training the year round.

I believe many departments are lax in their training in that they fail to

HERE IS THE TOPIC FOR THE NEXT ISSUE

1. What is the practice of your department in controlling the life hazards incidental to church schools, Sunday schools and the congregating of other large groups of children in church structures for various activities?
2. Do you find safeguards to life in such establishments equal to those in public schools?
3. Are inflammable decorations, electric appliances (motion picture machines, spotlights, etc.) and other equipment which may constitute a life hazard permitted?
4. Do your fire department inspectors cover these establishments in their regular tour?
5. Have you found that church organizations are, in general, willing to cooperate with the Fire Department in correcting hazardous conditions?

provide a qualified drill master on a full time basis. I also believe that a properly organized curriculum completely covering the field of firemanics is important and too often is not provided.

In my opinion, the teaching of firemen in many cases is comparable to starting a child out in high school. If courses were properly organized so that basic fundamental facts were learned first and advancement made on a solid foundation of knowledge acquired, providing a thorough understanding, our training programs would be far more effective.

L. E. Halstead, Chief, Youngstown, Ohio: Our men are given training only at the station to which they are assigned. This consists of ladder work and laying hose lines in the immediate vicinity of their station. The captain also instructs in the use of various tools and emergency equipment on the apparatus. Outside work is only done during the summer and fall; inside work on a year round program. We do not have a regular training schedule or training tower, but we are planning to build a tower sometime this spring.

A regular schedule of supervised training, a good training tower and a qualified instructor are musts for every department. This would not only make for a better fire force, but would train the men in safety for themselves and result in a drop in the high fire loss that seems to be general throughout the entire country.

R. A. McKinney, Chief, Indianapolis, Ind.: It is compulsory for an engine company, ladder company or rescue squad to be in our drill school every

SCOTT BACK-PAK

Fight Fires Quickly, Safely -at the source!

with

Scott Air-Pak

Scott Air-Paks are reducing fire losses by permitting action at the fire's source — quickly, and without fear of unknown smoke or fume hazards. In less than a minute an Air-Pak is on the wearer "ready to go", with a supply of cool, confidence-inspiring *air* (not oxygen) instantly available.

Scott Air-Paks can be put in operation in temperatures as low as 20° below zero. They can't be "outbreathed" — provide an ample supply of air regardless of age or physical condition of wearer. Fine for training purposes; easy to use and learn how to use — Air provides inexpensive training. Standard in thousands of fire departments and industrial plants.

Help *your* department build an enviable record of life and property conservation — with Scott Air-Pak!

Scott Senior Sling-Pak

Many in use by cities and towns with a number of "cellar-less" single story buildings; also used to supplement Scott Back-Paks (above) for short-duration periods, and for chiefs to make short inspection trips into smoke or fume-laden buildings.

Write for Booklet!

Get the full story of Scott Air-Pak equipment — also arrangements for FREE DEMONSTRATION. Write for *Bulletin* 510 and name of nearest distributor — today!

ESTABLISHED IN 1932 Scott FOR SAFETY - FOR SERVICE

SAFETY EQUIPMENT DIVISION

SCOTT AVIATION CORP.

215 ERIE ST. LANCASTER, N. Y.

"But how was that? You have had a good job and a steady income for years."

"My family kept growing and my expenses always outdistanced my paycheck even with several raises."

"You seem to be getting along all right now. What did you do?"

"I discovered a simple way to supplement my income. I invested a small part of my savings in a few Hamilton coin-operated scales and to my amazement I was shortly realizing over 50% profit."

"Doesn't it take a lot of your time?"

"That is the wonderful part of it. Hamilton Scales are extremely simple in construction and never require any service. My son, Jack, and I visit each scale only three or four times a year to collect the pennies. I have over a hundred scales now and I figure we each average about one day's work a month to run our route."

"How much do you make on a hundred Hamilton Scales?"

"My net income has averaged $300.00 per month now for several years."

"That's amazing, do you suppose I can start a route too?"

"You sure can, just write direct to Hamilton Scale Company, they will give you all the information. Hamiltons carry the lowest price to operators and are the best value among the approved scales. You can buy them on deferred payments too!"

"That's for me. I will write them today. Thanks for the tip, Bill."

HAMILTON SCALE CO.
DEPT. D, 214 OLIVER STREET
TOLEDO 4, OHIO

HAMILTON SCALES

day of the year for both inside and outside work from 9 A.M. to 4 P.M., and every man is graded at these schools.

Every company must have inside work, rehearsing their last training period at the school. The senior officer is in charge of this training.

I believe that more sincere training in quarters and at the drill school would improve fire departments all over the country and would no doubt make each department more efficient.

Joseph S. Masterson, Commissioner of Fire, Buffalo, N. Y.: Outside drills are held during the spring, summer and early fall. The weather would not permit it the year round. Inside drills are held the year round.

We hope to be able to replace our present drill tower with a more modern one, which would include an inside lecture room which could be used the year round, thereby keeping all the members fully informed with the latest developments in fire fighting, the use of tools, chemicals, etc. They would be right up-to-date at all times.

John A. Slattery, Chief, Rochester, N. Y.: Our firemen are given outside training and instruction the year round. We have available, and have had for some time, a very large drill hall with the floor at ground level into which even our largest apparatus may drive and, with the exception of the tallest aerial ladders, maneuver.

Our firemen receive inside training, lectures and blackboard work the year round.

I believe fire training in general is being done well and that the greatest improvement in training could come from a competent set of training films promulgating standard practices for basic and advanced firemanic evolutions. Further, such films and the agenda to be demonstrated should be compiled and approved by a cross-section of competent instructors and fire chiefs throughout the nation.

* * *

This is in reply to a previous round table discussion on the traffic problem at fires.

Robert H. Seavey, Deputy Chief, Milford, N. H.: The only method we have for controlling traffic at fires at the present time is our local and state police which have very limited personnel available for this work.

About a month ago I was in command early one evening when we received an alarm for a fire about three miles beyond our hydrant system on a narrow black top road. We responded with three engine companies and a ladder company. It was during a dry season and all the water holes in this area were dry. Fortunately it was just an oil stove fire and was promptly taken care of with a carbon dioxide extinguisher. If the fire had been a more serious one we would have had to shuttle our water in our booster tanks from our last hydrant. This would have been impossible as the road was completely blocked with sightseeing traffic. The one police cruising car that responded with us on this alarm was by far inadequate to handle any such situation as this. We were greatly hampered by this traffic and considerable time was lost in getting our equipment back to its quarters.

BOOKS
For Every Fire Fighter

FIRE CHIEF'S HANDBOOK

For progressive fire chiefs interested in up-to-date fire-fighting methods, the "Fire Chief's Handbook" will be a mighty valuable reference guide. It gives to ambitious fire department officers and men, in plain, understandable form, information that should prove extremely helpful in preparing for promotional examinations.

It is a book every fireman needs and ought to have. **Price $4.00 Postpaid**

FIRE SERVICE HYDRAULICS

Brings thoroughly up-to-date the subject of hydraulics as it pertains to every phase of fire-fighting — in simpler, more understandable and more complete form than ever. Not only that, it embraces, as well, many important new angles that have never before been covered anywhere.

"Fire Service Hydraulics" is a book every progressive fire fighter from the Chief down needs and should have.

Price $3.00 Postpaid

PROMOTIONAL STUDY COURSE FOR FIREMEN

To fire chiefs and other officials responsible for preparing examinations, this book will be found most helpful. And it is a mighty good reason, too, why fire officers and men should find it of inestimable value in studying for advancement. Covers in 48 chapter lessons most of the important phases of fire protection promotional study — mainly in questions and answers form. **Price $3.00 Postpaid**

QUESTIONS and ANSWERS FOR LIEUTENANT and CAPTAIN

Includes chapters on Report Writing How to Answer Examination Questions, Chemistry Examination Questions, Fire-Fighting Questions, Overhauling, Ventilation, Fire Prevention, Inspection, Evolutions, Drills, Use of Apparatus, Rescue Work, and in fact all the topics covered by the fire department promotional examinations.

Price $2.50 Postpaid

CASE-SHEPPERD-MANN PUBLISHING CORP.
24 West 40th St., New York 18, N. Y.

We have taken this problem up with our local police and have received the best cooperation possible with their limited personnel. We have also put numerous articles about this problem in our local papers which seem to help for a short time only. I do not believe we can handle fire and police work at the same time and still do justice to what our taxpayers expect and are entitled to from our fire department.

Obituaries

Arthur C. Daly Deceased

Arthur C. Daly, 59, for twenty years a special agent in the arson department of the National Board of Fire Underwriters, died March 19, 1949, in Teaneck, N. J., of injuries received in an automobile accident in Monticello, N. Y., on February 22. He was a brother of William Jerome Daly, secretary of the New York Board of Transportation and widely known student of fire fighting.

Born in New York City, Arthur Daly was a reporter for the New York *Evening Journal* for several years, joining the National Board in 1926 as investigator in northern New Jersey and southern New York.

Surviving also are his widow, the former Minerva J. Miller, and another brother, Thomas R., an engineer in the New York Fire Department.

Chief Biedermann Dies

Leo F. Biedermann, "chief emeritus" of Pearl River, N. Y., died March 16 following a long illness. He was a former member of the New York Fire Department during which time he administered the affairs of the "Second Endowment."

Chief Biedermann retired to Pearl River after leaving the N.Y.F.D., where he became interested in building up that volunteer department. He later taught fire prevention and fire protection in the schools and fire houses of Rockland County. One of his hobbies was finding and reconditioning old fire hats.

Ex-Chief Jethro Gibbs Dead

Retired Fire Chief Jethro Gibbs of Montclair, N. J., died on Saturday, April 2, 1949.

Chief Gibbs was appointed to the Montclair Fire Department on October 14, 1901, and was promoted to Captain on July 1, 1914, and to Chief of the Department on November 6, 1923. He retired from the Department on April 2, 1933.

Ex-Chief J. Kranyik Dead

Joseph Kranyik, 37, former Chief of the Tunxis Hill Fire Company of Fairfield, Conn., died in St. Vincent's Hospital, Bridgeport, on February 5 of a heart ailment. Former Chief Kranyik, brother of Chief James Kranyik of the Fairfield Police Department, had been ill a short time.

A lifelong resident of Fairfield, Mr. Kranyik conducted a service station and repair shop many years. He had been a member of the Tunxis Hill Fire Company for 19 years. Another brother,

PLATE NO. 116

LEADER
IN MAKING FITTINGS
THAT STAND THE GAFF

57 years of experience, skill and designing are yours to command!

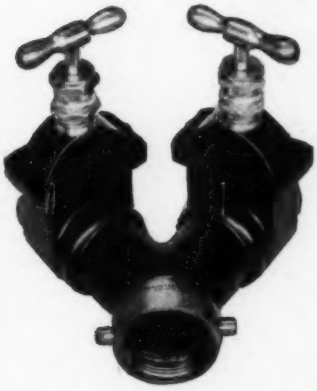


PLATE NO. 105

Second to none for durability and all-around dependability, you can be sure when you specify POWHATAN that you are getting the best!

PLATE NO. 116A

Since 1892, we have led the field in the production of dependable brass products for Fire Departments. For 57 years Fire Chiefs have been consistently ordering our products, which is an excellent indication of their value.

• *Write for our complete list.* •

POWHATAN BRASS & IRON WORKS
RANSON, WEST VIRGINIA
Phones 93 & 94 Charles Town West Virginia – Established 1892

NIP BRUSH FIRES IN THE BUD WITH A HALE FZZ PORTABLE!

Fire fighters are "run ragged" during the Spring months with brush and field fires . . . and in hundreds of communities they have found a Hale FZZ Portable Pumping Unit mighty handy in putting such fires out quickly and easily. Picture shows a Hale Type FZZ Portable Pumping Unit fighting a brush fire from a moving truck. The unit can be carried on virtually any type of equipment, making it possible to fight fire while in motion, using a booster tank for source of water.

The FZZ will supply, from draft, 60 U.S. Gallons per min. at 90 lbs. pump pressure; and 150 U.S. Gallons per min. at 30 lbs. It can supply two capable fire streams through 1½" lines. Ask for a demonstration!

Write for FZZ folder to:

HALE FIRE PUMP COMPANY
CONSHOHOCKEN, PA.

Fireman Michael Kranyik, is a member of the Fairfield paid Fire Department. He is survived also by his wife and six children. TOM MAGNER.

Ex-Chief McCullough Dies

J. Augustus McCullough, 80, retired chief of the Port Chester, New York Fire Department, died Feb. 22, 1949.

While head of the Port Chester department, he helped found Westchester County's outstanding mutual aid organization, the Fire Chiefs Emergency Plan. Later he participated in the creation of a similar set-up in Fairfield County, Conn. He was a past exalted ruler of the Port Chester Lodge, B.P.O.E. and former member of the New York State Fire Chiefs Association and International Association of Fire Chiefs.

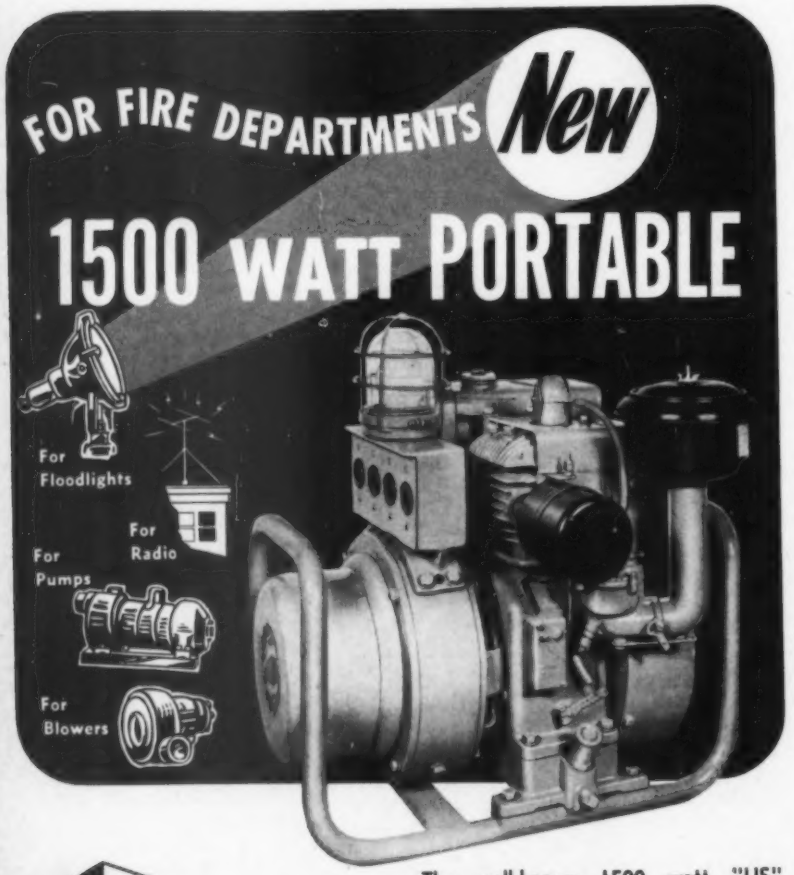
John J. Fainter Dies

John J. Fainter, one-time mayor of Hyattsville and organizer and past chief and treasurer of the Hyattsville (Md.) Volunteer Fire Department, and first president of the Prince Georges County Volunteer Firemen's Association, died Jan. 20, 1949, at the age of 82. "Uncle John," as he was affectionately known, was interred in a Fort Lincoln cemetery plot given by the County Firemen's Association. Members of the Hyattsville Volunteer Fire Department officiated at the funeral services; Chief W. D. Anderson and former chiefs E. A. Davis, John L. Sullivan, Robert A. Baker and Harry Degges with Fire Marshal Earle S. Dorrelle were active pallbearers; honorary pallbearers came from the various county fire departments and rescue companies.

Active in Hyattsville and County fire service circles since coming to the community, the deceased was chief of the fire department from 1906 to 1916 and again from 1919 to 1921. He served as president of the County Association for two years. In 1926 he was elected president of the Maryland State Firemen's Association. He also served as treasurer of the local fire department for 26 terms and was town councilman from 1902 to 1916. Besides his wife, he is survived by two sons and four daughters.

Chief M. A. Riley Dies

NORRISTOWN, PA.—Fire Chief Miles A. Riley, 50, died March 22 after an illness of two months. Chief Riley, member of Norris Hose Co. for 31 years, was appointed head of the department in May, 1939. In his service with Norristown's oldest fire company, he had been president, treasurer and secretary of the Board of Directors. Before becoming chief, he served three years as assistant chief. He is survived by his widow, daughter, two brothers, and a sister.



US ELECTRIC PLANTS

The well-known 1500 watt "US" Portable Electric Plant is now even better! More compact . . . easier to carry . . . with improved magneto ignition . . . improved design for even greater dependability! Automatic voltage regulation. Positive splash lubrication. No fussing to mix gas and oil. 3.8 HP 4-cycle engine. Only 22 inches high, and weighs just 160 pounds. Other "US" units from ½ to 140 kw. Write for details.

UNITED STATES MOTORS CORP.
430 Nebraska Street • Oshkosh, Wisconsin

Persons in the News

Chief Richard Tierney Heads Arlington Fire Department

Arlington, Mass., Selectmen unanimously appointed Acting Chief Richard J. Tierney, Chief of the Arlington Fire Department.

Chief Tierney has been acting chief of department since the retirement of his brother, Daniel B. Tierney, who had been chief for 24 years, last April, and who was for 51 years a member of the department. Chief Daniel B. Tierney although retired, still remains as secretary-treasurer of the International Association of Fire Chiefs, a post which he has held for many years.

The new chief has been a member of the department for 24 years. It is understood he will appoint former acting Deputy Chief Thomas H. Eagan as permanent deputy chief. The latter is under civil service and was considered for the position of chief.

Chas. Allison Made Chief at Fairfield

Charles Allison, veteran fireman with more than 32 years service, has been named chief of the Fairfield, Iowa, volunteer fire department to fill the vacancy caused by the resignation of G. T. Rowley who served in that capacity since 1935.

The new chief also has a long and enviable record. He has more than 32 years experience as a fireman, having joined the local department in 1916. He had served as captain of the Fairfield Department for the past several years.

As a result of the resignation and appointment of the new chief, several other changes were made among the officers of the department. Otis Anderson was named assistant chief; Arthur L. Baker, captain; Pete Burke, fire marshall; Norval Mitchell, fire captain, and William R. Baker, secretary-treasurer.

Chief Rowley drove a team which pulled the old fire wagon before the

city purchased its first motor fire truck in 1916. He joined as a regular member in 1920 and has watched the department grow until the present with its three pumpers in operation.

Schreeder Named State Forester

William F. Schreeder of Hartford, Conn., an employe of the Connecticut State Park and Forest Commission, has been named as State Forester of Connecticut. Mr. Schreeder has been Acting State Forester since July, 1948, when A. Raymond Kienholz resigned.

Mr. Schreeder was born in Haverstraw, N. Y. He was graduated from the New York State Forestry College at Syracuse University, serving as a second lieutenant in the Coast Artillery in World War I and worked four years for the Illinois State Natural History Survey before he came to Connecticut in 1925.

From 1925 to 1927, he surveyed and mapped the holdings of the Connecticut Commission on Forests and Wild Life. He transferred to the Forestry Department in 1927, was appointed district forester in 1928, and served as District Forester and a surveyor until last July when he was appointed Acting State Forester.

He planned and supervised the forestry work done by the Civilian Conservation Corps from 1933 onward and directed the work of the Forestry Department and the CCC during the 1938 hurricane. TOM MAGNER.

New Deputy Chiefs in Hartford

Fire Chief Henry G. Thomas announced the promotion of Captains John J. Dignan, Company 2 and C. H. Leon Crawford, Company 3, to the posts of Deputy Chief. The men ranked first and second among five captains who passed a recent competitive examination. Eleven other captains failed to attain the minimum required scores. Both Chief Dignan and Chief Crawford joined the Hartford Fire Department in 1919.

Prussing Opens Fire Prevention Office

George F. Prussing, widely known fire protection engineer, has opened an office in Room 1001, the Petroleum Building, 714 W. Olympic Blvd., Los Angeles, Calif., from which he will practice his calling. He will specialize in investigation of fires and explosions, preparation of technical evidence, court presentation of evidence. He will also represent industry in connection with drafting of regulations covering hazardous occupations and design of fire prevention and control facilities.

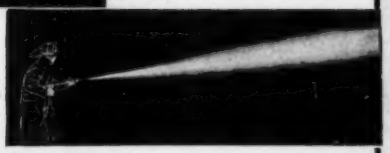
Edgar E. Ramsdell a Veteran

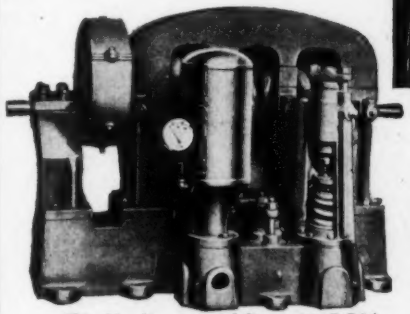
Edgar E. Ramsdell, Reserve Deputy Chief of the Lewiston, Me., Fire Department, one of the few remaining men who can remember working in the field of electricity when it was in its infancy, will be 80 years "young" on his next birthday.

Well and widely known to the New England firefighters, Mr. Ramsdell has been an employe of the New England Telephone and Telegraph Company.

The Hardie Fog Gun gives you fog, spray or a hard, smashing stream. Trigger control. Perfect balance.

800 P.S.I.

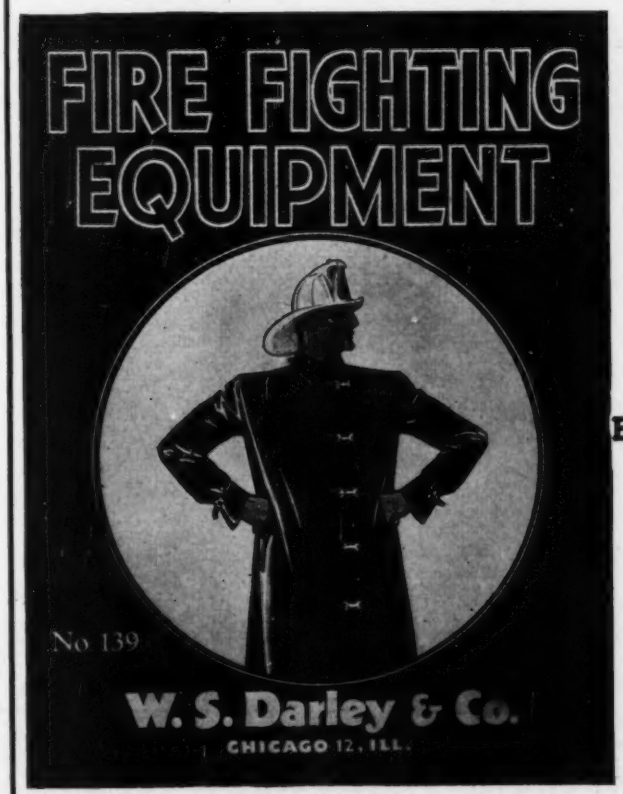




This Hardie pump delivers 60 G.P.M. at 800 P.S.I. at 135 R.P.M. A smaller unit delivers 35 gallons at 800 P.S.I.

BEFORE you make up specifications or buy a fog fire fighter find out why Hardie High Pressure Pumps and Fog Guns give you more of what you want in such units. Write for complete data.

THE HARDIE MFG. COMPANY
Los Angeles 11, Calif. • Hudson, Mich • Portland 9, Oregon
Export Dept.—Detroit 26
Canadian Office—Clarence W. Lewis & Son Ltd.—Grimsby, Ont.



NEW 100 PAGE CATALOG • Everything for Fire Depts. • Write Today For Your Copy

Prior to that he worked for Salem and other city utilities in the course of which sixty-five years he spent 23 years as Assistant Superintendent of Fire Alarms, in Lewistown. For a number of years he was associated with A. D. Wheeler, New England agent of the Gamewell Fire Alarm Company of Newton Upper Falls.

Chief Ramsdell says that after 65 years in different branches of the electrical industry he believes it's time to take life easy.

John Craig Retires

John H. Craig, of Bushnell, Ill., for many years Illinois State Fire Marshal, retired to private life on February 28, 1948. Thus the fire service not only of Illinois, but of the nation, loses a good friend and tireless worker.

The Fire Marshal's office in Springfield, Ill., had become a center of activity of the state's fire service, and under Craig's encouragement state training of firemen flourished while he was guide and mentor of the Annual State Fire College held at the University of Illinois.

John Craig's labors, not only with state fire service organizations but with the national and regional fire chiefs associations, endeared him to fellow workers in the field of fire prevention and protection.

Governor Adlai of Illinois has appointed Pat J. Kelly, retired battalion chief of the Chicago Fire Department, to succeed John Craig. Chief Kelly has been in charge of the Firemen's Pension Fund in Chicago and is deeply interested in the Chicago chapter of the International Association of Fire Fighters.

New York Fire Chief and Mayor Confer at Fire

Fire Chief Peter Loftus (left) and Mayor William O'Dwyer, of New York City, hold a conference at a large fire in New York early this year. This was the first time the Mayor had met the Fire Chief. Shortly after this, Chief Loftus was brought up on charges resulting from a fire house party at which liquor was said to be dispensed, and was suspended. After claims and counter-claims, Chief Loftus was reinstated, and compensated for the period of suspension.

Coates Resigns Safety Post

Thomas H. Coates, who has headed the Bureau of Fire of the Division of Safety, New York State, since its inception in February, 1948, resigned his post on February 15th, because of ill health, according to the announcement by State Safety Director, Thomas W. Ryan.

Chief Coates, who left his deputy chief's job with the Rochester Fire Department to help launch New York's State training and mutual aid program set up by Governor Dewey last year, was able to see firemen's training get under way in over two-thirds of the State's fifty-five counties.

Director Ryan said that Chief Coates' successor will be announced shortly.

Retired Capt. Johnson Celebrates 87th Birthday

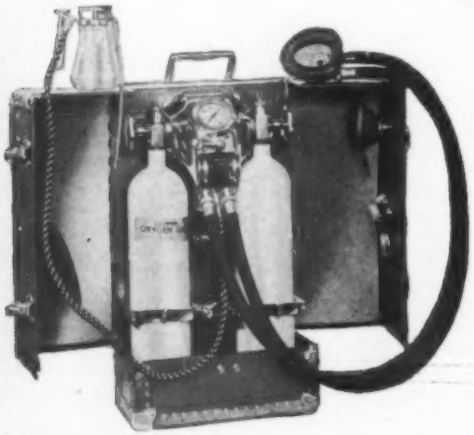
Capt. Albert Sidney Johnston, retired head of the New York Fire Patrol, celebrated his 87th birthday on Jan. 16th, 1949. "Captain Sid," as he is affectionately known, is hale and hearty and welcomes his old friends at his home in Salisbury Mills, Orange County, N. Y. WM. PAUL BABCOCK.

Chief Dey, of Pembroke, Ont., Honored

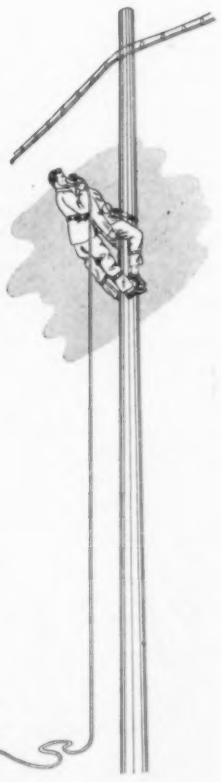
Fire Chief Robert P. Dey, of Pembroke, Ont., has been awarded the King's Police and Fire Service Medal for the daring rescue of an 11-months-old baby from a burning Pembroke house in March, 1948.

Appointments and Promotions

OAKLAND, CALIF.—Battalion Chief Leo Brous of the Oakland Fire Department has been given leave of absence to accept the post as chief of the Emeryville, Calif., Fire Department, it was disclosed when official appreciation from the lat-



Goodner Model



You Can Use A

STEPHENSON RESUSCITATOR

Almost Anywhere

With the STEPHENSON RESUSCITATOR you can do a better job of resuscitation. When used with the midget attachment, shown at right, you can treat patients in hard-to-reach places. This mobility, plus the feature of lowering operating pressures at will, makes the STEPHENSON RESUSCITATOR your first thought in life saving.

RESUSCITATOR
ASSISTOR
INHALATOR
ASPIRATOR

WRITE TODAY FOR LITERATURE OR FREE DEMONSTRATION

STEPHENSON CORPORATION
RED BANK · NEW JERSEY

ter community was received by the Oakland City Council.

Chief Brous is the second member of the Oakland Fire Department to be drafted during the last eighteen months. The other is Battalion Chief J. F. Sandy who left to head the Piedmont, Calif., Fire Department.

VICTOR BURTLEY

* * *

WASHINGTON, D. C.—William H. Boswell, assistant superintendent of machinery of the District of Columbia Fire Department since 1947, took over duties of superintendent of machinery with the rank of deputy chief. Henry B. McDonald, who resigned from the department in 1946 with the rank of sergeant, was appointed assistant superintendent of machinery, with rank of captain. IRVING JOHNSON.

* * *

Retirements and Resignations

NEW YORK CITY—George Schultz, deputy chief of staff and operations, New York Fire Department, retired April 1, 1949. Chief Schultz, who has been a Brooklyn Borough Chief, joined the New York Fire Department in 1904.

* * *

FORT FAIRFIELD, ME.—James J. Cowan, former Bangor Fire Department Captain, and Chief of the Fort Fairfield, Me., Fire Department since 1945—the only permanent fire chief in Aroostook County, Me.—has resigned to accept the position as fire marshal with the Rhom and Haas Co. of Bristol, Pa.

Paint Thinner Fumes Explode

On November 12, 1948, at 2:20 P. M., the Klamath Falls Fire Department, Klamath Falls, Ore., received a call from the City Airport. On arrival they found the fire out. They found, instead, a 14-year-old boy, David Karl who, with his father, Enoch Karl, is doubtless wondering how they came out alive.

It developed that Enoch Karl mixed paint thinner with putty to thin down the latter. After it had thinned, it was then put on the floor as a crack filler.

Enoch's son David, brought in a buffing machine, which he was operating on the second floor when there was an explosion of considerable violence, and a flash fire. Part of the south wall of the room (plaster board, fortunately) struck the lad on the right arm, knocking him against the north wall into which his foot punched a hole.

The room in which the explosion occurred had been painted ten days previously but the blast and fire burned off much of the new paint and left large blisters on the walls.

The room adjoining on the west was damaged, part of the walls being blown into the center of the room, sections of the ceiling blown down and paint on the walls of this room was burned and blistered. Downstairs, one window was blown out and a wall in the kitchen cracked and bulged.

Investigation disclosed that the vapor from the paint thinner had settled in the walls and on the floor, where a spark from the buffing machine ignited it, causing the blast and flash fire. Why David was not killed or his clothing ignited by the concussion and flame remains a mystery. The fact that upstairs windows were open at the time of the blast may have had something to do with it. ROY ROWE, City Fire Marshal

THE MYSTERY LINE

Plate S-200

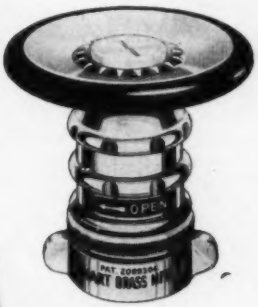


Plate L-200

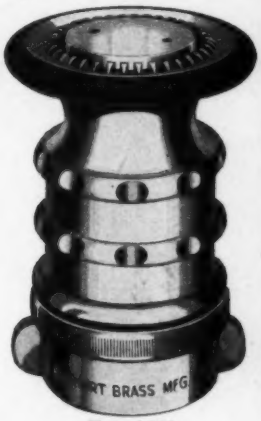


Plate J-200

SIZES
1"—1½"—2½"
2½" Jumbo

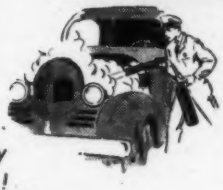
Solid Fog—Solid Stream—Shut Off. Plus complete water control in each size.

FIRE FIGHTING EQUIPMENT
ELKHART
BRASS MANUFACTURING CO.
ELKHART . . . . . INDIANA

TURN YOUR SPARE TIME INTO PROFITS!

SELL Randolph FIRE EXTINGUISHERS

$84. A WEEK FROM 2 SALES A DAY!



All Sizes . . . Approved By Underwriters!

Your prospects are *unlimited* . . . every factory, farm, home, garage, laundry, boat and car needs Randolph protection.

Here's the modern extinguisher with a host of fire-fighting features. It's easy to use . . . just one trigger-touch sends snowy CO_2 deep into the fire . . . smothers it in split-seconds. Randolph is non-toxic, no damage to equipment. Does not freeze, deteriorate, or conduct electricity.

Build a successful *part-time* business as a Randolph Dealer. Sell the nationally advertised Randolph Extinguishers used by leading industries everywhere. Write for your full or part-time Dealership Plan *now!* The same plan that is bringing big profits to scores of other firemen. Qualify for an *exclusive* territory by acting . . . TODAY!

RANDOLPH Laboratories, Inc., 19 E. Kinzie St., Chicago, Ill.

OREN

FIRE APPARATUS

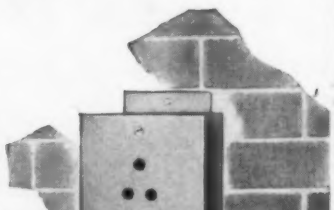
BUILT IN POPULAR CAPACITIES AND TYPES TO FIT YOUR REQUIREMENTS

Write for INFORMATION

OREN ROANOKE CORP.
ROANOKE 16, VIRGINIA

LET TUNGAR

guard your batteries



Country over, and for years, fire departments with top records have relied on G-E Tungar Chargers to keep their batteries at full-charge.

With Tungar chargers, no adjustments, no setting of dials are necessary. They automatically deliver the correct charging rate to one or two 3-cell batteries or to one 6-cell battery. And with Tungar, no worry about turning off the charger when you get a call—leaving it disconnected does no harm.

Tungar chargers are small, compact, with units available for most a-c ratings. They come with two long d-c leads with clips for easy hooking onto the battery or you can easily substitute a polarity plug.

For more details write to *Apparatus Dept., General Electric Company, Schenectady 5, N.Y.*

GENERAL ELECTRIC

466-101

What's Burning

THE following list includes fires of $10,000 loss and over in the United States and Canada for the month of March, 1949.

Month Ending March 31, 1949

Detroit, Mich.—Bldg. occupied by Wayne Soap Co. and its affiliates, Wayne Chemical Products Co. and Detroit Protein Products Co., destroyed.

Minneapolis, Minn.—Majestic Hotel bldg., destroyed.

Newark, N. J.—J. C. Woodhull Automobile Co., damaged.

Washington, N. J.—Altieri's Restaurant, Route 24, Pleasant Valley, destroyed.

Troy, N. Y.—Three furniture whses. and garage owned by Alfred Segal, destroyed. Dwelling also destroyed.

Canton, Ohio—Timken Roller Bearing Co. office bldg., destroyed.

Chattanooga, Ohio—Berne Equity Exchange Co. plt., damaged.

Toledo, Ohio—Prestole Corp. plt., sheet metal fastener mfrs., damaged.

Klamath Falls, Ore.—Klamath Basin Petroleum plt., Hatfield, damaged. Switch spark.

Portland, Ore.—The University of Portland gymnaseum, damaged.

Philadelphia, Pa.—Dwelling of Walter I. Cooper, Bryn Mawr, damaged. Sparks from incinerator.

Philadelphia, Pa.—Women's Apparel Shop, destroyed.

Rouyn, Que.—Four business bldgs. and nine business firms destroyed. Business bldgs. included Stedman Bldg. and Rice Bldg.

Minot, S. D.—Airplane hangar at Minot Airport, damaged.

Danville, Va.—Piedmont Tobacco Auction Whse., damaged.

Quebec, Can.—Coliseum, municipally owned, destroyed. Cigarette butt.

Chicago, Ill.—Factory of Electro-Matic Products Co., damaged.

Chicago, Ill.—St. George's Catholic Church, damaged.

Kansas City, Kans.—Bldg. occupied by Temperature Products Co. and Mace-Jones Appliance Store, destroyed.

Manchester, N. H.—Business bldg., Elm street, destroyed.

Akron, Ohio—Akron Tent & Awning Co., damaged.

Delta, Ohio—Town Hall, destroyed.

Toledo, Ohio—Emanuel Methodist Church, damaged.

Palzer, S. C.—Grammar school bldg. of Smyth School, destroyed.

Brookings, S. D.—Farmers Co-operative Co. elevator, damaged.

Nespelem, Wash.—Colville Indian agency, damaged.

Edmonton, Alta.—Gault's Alberta Wholesale Firm and Northern Hardware, Ltd., destroyed.

Lapwai, Ida.—Lapwai grade school, destroyed.

Onton, Ky.—Consolidated School bldg., destroyed.

St. Joseph, Mo.—Business-apt. bldg., damaged.

Batavia, Ohio—Dwelling of W. D. Clark, destroyed.

Newport, Ore.—Waite Agate Shop tavern, destroyed.

Philadelphia, Pa.—Henry A. Fischel, Inc., damaged. Thomas V. Hooper and Son, Samuel Cowan and Sons, Inc., and William Marcus & Co., at same address, also damaged.

New York, N. Y.—Whse. of Electro-Lux Corp., damaged.

Columbia, S. C.—Whse. of Columbia Salvage Co., destroyed.

Los Angeles, Cal.—Dwelling of Charles Fredericks, in Los Felix hills, destroyed.

Greeley, Colo.—Colorado State College of Education, destroyed.

Sioux City, Ia.—Bldg. occupied by Disabled American Veterans clubhouse, tavern and seed store, damaged.

Luray, Va.—Four business establishments (Fitch's Dept. Store, McCarthy radio shop, Western auto store and storage whse. of Northern Virginia Power Co.), destroyed; H. V. Hudson hardware store, damaged.

St. John, N. B.—Whse. of Monstad & Co., Ltd., and adj. whse. destroyed. Northern Roofing & Insulation Co., Ltd., damaged.

Portland, Conn.—Office-garage and whse. of Valley Oil Co. plt. destroyed. Overheated boiler.

Jackson, N. H.—Dana Inn damaged. Defective heater.

Alliance, Ohio—Columbia Theatre damaged.

Minerva, Ohio—First Christian Church destroyed.

Warren, Ohio—Fisher Bros. Dry Goods Co. store, downtown district, damaged.

Long Beach, Cal.—Well of Herwick A. Applegate destroyed.

Kingston, Ont.—Whse. of M. Sullivan Construction Co., damaged.
Toronto, Ont. — Thomas Wilkins Small Wares Co., damaged.
Montreal, Que.—Offices and whse. of Laxer Fiber Co., Regal Trading Co. and Melody Beverages, damaged.
Lexington, Ky.—Horse training barn on farm, Walnut Springs, destroyed.
Lyons Falls, N. Y.—Bldg. occupied by Rooker's men's clothing store, Victory store and apts.; dwelling of Ralph Peeling and restaurant of Bernard Casey, destroyed. Three bldgs. occupied by liquor store of Larry Meda, Ted Auston's 5 & 10, women's apparel shop of Tillie La Fave and apts., damaged.
Owosso, Mich.—Eagles Club, destroyed.
Greenland, N. H.—Combination genl. store and postoffice, destroyed.
New York, N. Y.—Loft bldg., 6 Birmingham street, damaged.
Lima, Ohio—Sigma Theatre, damaged.
Breilenbush, Ore.—Breilenbush store, postoffice, destroyed.
Vernon, Cal.—Air Reduction Pacific Co. plt. partially destroyed by explosion and fire. Explosion of large and 150 small acetylene gas tanks started fire.
Clinton, Ia.—Clinton County Club, damaged. Overheated heating system.
Sturgis, Ky. — Elevator of the Union County Grain Co., destroyed.
Detroit, Mich.—Apt. bldg., 2418 Stair, destroyed.
Denton, N. C.—Denton Lumber Co., destroyed.
Portland, Ore.—Portland Rug Mfg. Co., damaged.
Farmville, Va. — Auditorium at State Teachers College, damaged.
Charleston, W. Va.—Woolworth store bldg. and adj. Kresge bldg., damaged.
St. Mary's, W. Va.—Dormitory for feeble-minded girls at St. Mary's Training School.
Hamilton, Ont. — Bldg. destroyed. Caonnaught Bowling Alleys among occupants.
Birmingham, Ala.—Hueytown Elementary School, destroyed.
Birmingham, Ala.—Our Lady of Sorrows Church Parochial School, damaged.
Welcome, Ga.—Western High School bldg., destroyed.
Lincoln, Neb.—National air guard hangar, destroyed.
Elkin, N. C.—Automobile display bldg. and garage of Durham Motor Sales, destroyed.
Weldon, N. C.—Boiler room and sawmill plt. of J. S. Turner & Son Lumber Co., destroyed.
Somerset, Pa.—Lohr Feed & Implement Store, Kantner, eight miles north, destroyed.
Fort Deposit, Ala.—Ryals Planning Mill, damaged. Backfire from diesel motor.
Chicago, Ill.—Kolar Laboratories, Inc., damaged.
Grayson, Ky.—Bagby Lumber Co. plt., destroyed.
Whitesburg, Ky.—Bldg. occupied by J. H. Hobbs five-and-ten-cent store, destroyed. Adj. bldg. occupied by Cossie Quillen drug store, offices and apts. and Kepper dept. store and Western Auto supply store, damaged.
Monroe, La.—Keystone Paint & Decorating Co. and Ouachita Furniture Co., destroyed. Bldg. occupied by D. Masur & Sons clothing store, and Guthie Appliance Co. and Lane Wilson Seed Co., damaged.
New Orleans, La.—Prevue Cocktail Lounge, damaged.
White River Junction, Vt. — Teddy's Hotel and Grille, damaged.
Lakeville, Conn.—Lakeland Motors Co. garage of Lakeland Motor Lines Co., destroyed.
Manchester, Conn.—Plt. of Green Machine Co., damaged. Adj. dwelling damaged also.
Danville, Ky. — Brown Auto Parts Co., South, destroyed.
Edmonton, Alta.—Revillon bldg., industrial section, occupied by drygoods firm and wholesale offices, destroyed.
Oakland, Cal.—Army Pier, south of Oakland End of San Francisco Bay Bridge, destroyed.
Piedmont, Cal.—Dwelling of Evangelist Bebe H. Patten, destroyed.
Olathe, Colo. — O. W. Robinson Produce Co. whse., destroyed.
Hamilton, Ill.—Oakwood Grade School, Hancock County, destroyed.
St. Joseph, Mo.—Red Clock Nightclub and dwelling, two miles east, destroyed.
Kenton, Ohio — Four business bldgs., Public Square, damaged.
Fort Worth, Texas—Dwelling of Chester Halton, 1½ miles north, Denton Highway, destroyed.
Laramie, Wyo. — Diamond Valley dude ranch lodge bldg. above Arlington, 40 miles west, destroyed.
Live Oak, Cal. — Market of M. A. Behr, destroyed.
Berwyn, Md.—Town Hall shopping center and apts., destroyed.
Carbondale, Ill. — Five business establishments, down town section, destroyed.
Picayune, Miss.—Goodyear Planing Mill and Box Factory, damaged.
Marietta, Ohio—Persons Hall, Marietta College, destroyed.
Oil City, Pa.—Antler Hotel and one adj. bldg., damaged.

The New HALE "BL" Discharge Valve

. . . Now available on all Hale Fire Pumps

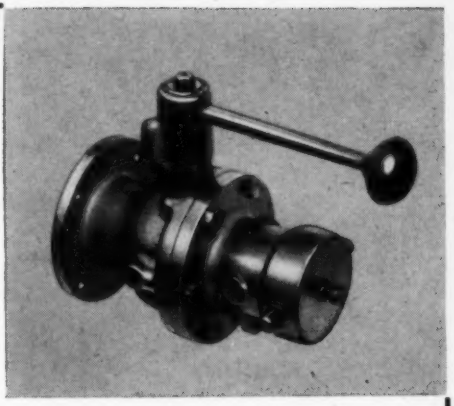
Easy-turning at all pressures, the new Hale Type BL Discharge Valve can be "gated" and locked into position by a slight turn of handle to prevent creeping. The water flow is through a perfectly round waterway for low flow resistance.

Many tests have proved the valve's reliability and freedom from service troubles.

The new valve is not sensitive to dirty water and will hold high pressure or vacuum. Replacement parts are inexpensive, easy to install and do not have to be "ground in." Ample handle clearance and easy turning mean freedom from "knuckle busting."

The Hale Type BL Discharge Valve is typical of constant Hale improvements resulting from constant research.

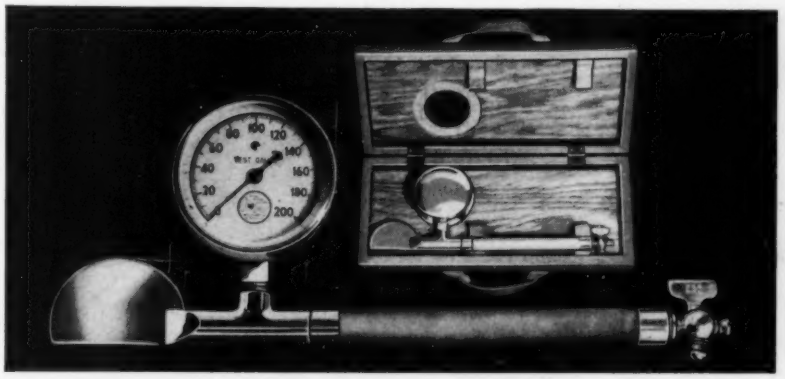
For detailed information send for Bulletin #293 on New Hale BL Discharge Valve.



Outstanding Features

- **Turns easily at all pressures.**
- **Will not leak at pressure or vacuum.**
- **Circular section through valve cuts flow loss.**
- **Not sensitive to dirty water.**
- **Easily serviced . . . no "grinding in."**
- **Slight twist of handle locks valve into any desired position for gating.**

HALE FIRE PUMP COMPANY
CONSHOHOCKEN, PA.



"TRUMPET" PITOT TUBE AND GAUGE

For periodically checking the efficiency of pumping units, for accurately measuring water flow, nozzle pressure and hose friction loss. Thoroughly dependable, sensitive, accurate and easy to use.

A pitot tube and gauge is a "must" in the important job of keeping equipment up to top effectiveness — and here again the "Trumpet" insignia means the most satisfaction for your money.

Ask your Wooster Brass representative for complete specifications and price . . . or write direct for details.

HOSE BRASS GOODS — WB LINE — THE WOOSTER BRASS CO. WOOSTER, OHIO

THE WOOSTER BRASS CO.
WOOSTER OHIO

STERLING SIRENS

NOT BY CHANCE . . . The Choice of Leading Fire and Police Departments, Hospitals, Manufacturers and Others

STERLING has led the field in new designs and improvements for over 40 years. First to introduce precision manufacturing of siren alarms, Sterling is now the world's largest manufacturer of siren equipment.

FOR EMERGENCY VEHICLES
Model 20 SIRENLITE—a powerful siren combined with an automatically flashing red light.

FOR STATIONARY USE
Model M—quick accelerating, powerful, heavy duty public fire alarm. Fully weatherproof, made from the highest grade material.

Complete Line of Siren Equipment Available. Bulletin on Request.

THE STERLING SIREN FIRE ALARM CO., INC.
58 Allen St., Rochester 6, N. Y.

BAR-WAY
HOSE COUPLINGS
U. S. PATENT 2687447
for
HIGH PRESSURE
FOG *lines*
Approved By
UNDERWRITERS LABORATORIES

Streamlined
Full Flow
High Pressure
Accurately Machined
Internal Expansion
Remountable

"ON THE ENDS—IN THE END"
IT'S BAR-WAYS

BAR-WAY MFG. CO.
STAMFORD • CONNECTICUT

JANESVILLE QUALITY TURN OUT CLOTHING

Our turnout suits are giving excellent satisfaction in most of the large fire departments throughout the U. S. and

THERE MUST BE A REASON WHY SO MANY FIREMEN INSIST ON JANESVILLE QUALITY

NOW AVAILABLE

We can now supply old type ¾ Length and Knee Length Felt-lined Firemen's Boots.

JANESVILLE APPAREL CO.
JANESVILLE, WIS.

Kennewick, Wash. — Whse. Bunch-Finnegan Plumbing Electrical Co., destroyed.
Wausau, Wis. — Heinemann bldg., store-office block, damaged.
Casper, Wyo.—Stock rooms at Casper Commissary, destroyed.
Miniwake, Que.—Eagle Lumber Co. mill, Mont Laurier, damaged.
St. Donat, Que.—Killarney Hotel, Lake Ouareau, destroyed.
Esterhazy, Sask. — Saskatchewan Co-Operative Creamery plt., damaged.
Decatur, Ala. — Whse. of Southern Cotton Oil Co., destroyed.
Stanton, Del.—Stanton Methodist Church, damaged.
Baltimore, Md.—Associated Transport Co., Inc., garage damaged. Welding spark.
Oswego, N. Y.—Knights of Columbus bldg., damaged.
Pittsburgh, Pa.—Airplane hangar at Allegheny County Airport, destroyed.
Edmundston, N. B. — Dwelling and garage of Ludger Martin, destroyed.
Witmar, Cal.—Garvel theatre, destroyed.
Jacksonville, Fla.—Sun Electric Co., destroyed.
Bath, Maine—Bldg. of Bath Lumber Co., damaged.
Weymouth, Mass.—Pizza House, food and liquor establishment, destroyed.
Jersey City, N. J. — Business bldg. occupied by M. & M. Bag Co. and Muffin-Makin Co., Inc., damaged.
Greensboro, N. C.—Plant of Griffin Baking Co., destroyed.
Cincinnati, Ohio—Main bldg. of Howard Fairback Co., cleaning product mfrs., destroyed.
Coshocton, Ohio—Bldg. occupied by M. O'Neill Dept. Store, destroyed.
Campbelltown, Pa. — Bakery and adj. dwelling, destroyed. Explosion.
New Castle, Pa. — Central Presbyterian Church, destroyed.
Knoxville, Tenn. — Case Bldg., Fulton-Sylphon Co., damaged. Sparks from welder's torch.
Richmond, Va.—Dixie Portland Flour Mills, destroyed.
West Bridgewater, Mass.—Howard High School, destroyed.
Little Rock, Ark.—Bldg. occupied by Refrigeration & Electric Supply Co. and O'Bannon Bros. Electric Supply Co. destroyed.
Baltimore, Md.—Bldg. of Lexington Market destroyed.
Palmyra, N. Y.—Business-apt. bldg. occupied by Fassett Jewelry Store, hardware store and apts.; and adj. bldg. occupied by Finn Auto Supply Co., damaged.
Martin, N. D.—General merchandise store and post office destroyed.
Jersey City, N. J.—Bldg. occupied by Mafaltone Corp., toy makers; Auster Bros. furniture whse. and Desirable Girls' Frocks, Inc., destroyed.
Hickman, Ky.—O. C. Henry Clothing Store, Allen Jones Liquor Store and Clyde Oliver Pressing Shop, destroyed.
Leroy, N. Y.—Two-story plt. of Union Steel Chest Corp. destroyed.
Cleveland, Ohio—Apt. bldg., 10017 Lake avenue, N. W., damaged.
Fort Worth, Tex. — The Eighth Avenue Drug Company, R. C. Cox & Co., C. D. Lancaster Refrigerator Shop, Chapmans Barber Shop, Bake Rite Bakery, Cooks Paint and Wall Paper Co., and Park Way Cafteria damaged. Defective wiring.
Chicago, Ill.—Bldg. occupied by Shore Furniture & Radio Co. and store of Neisner Bros., Inc., damaged.
Lincoln, Me.—Briggs Express Co. garage and refrigeration plt., damaged.
Boston, Mass. — New Haven Railroad whse., Readville, destroyed.
Sidney, Mont.—Valley Motor Co. and Northern Motors garage damaged.
Hampton, N. H.—Town Hall destroyed. Hot air furnace.
Roaring River, N. C. — Hardware store, whse. and dwelling, and barber shop, destroyed.
Scranton, Pa. — Business-apt. bldg. occupied by Howard Furniture Co. and apts., destroyed.
Beaumont, Que.—Furniture factory, sawmill, two residences and barn, destroyed.
Wright City, Okla.—School and gymnasium destroyed.
Milton, Ont.—Kiln of Milton Brick Co. damaged.
Encintas, Cal.—San Dieguita Union High School damaged.
Oskaloosa, Ia.—Bldg. owned by Oskaloosa Chamber of Commerce, occupied by Ideal Mfg. Co. plt., household item mfrs., destroyed. Defective wiring.
Pinkham Notch, N. H.—Dana Place, resort hotel, destroyed.
Catskill, N. Y.—Klugo Furniture store bldg. and adj. Greenberg Newsroom-stationery store, destroyed.
Steubenville, Ohio—Riviera Club damaged.
Lower Moreland Township, Pa.—Storehouse of H. W. Butterworth & Sons Co., Bethayres, damaged.
Spokane, Wash.—Iris apts. damaged.

Woburn Again in News

Mayor William E. Kane, of Woburn, Mass., his brother, Fire Chief Michael J. Kane, and the paid members of the Woburn Fire Department are further embroiled in controversy.

In his latest diatribe the Mayor lashed out against canvassing by uniformed Woburn firemen for support of their Firemen's Relief Association ball by ordering refund of any contributions already received for a "so-called souvenir program."

In a letter to Chief Kane, the Mayor orders the latter to "notify any fireman who has solicited or accepted any such contribution from merchants, taxpayers or any citizen to return the money immediately to whom it rightfully belongs."

The Woburn firemen, who have a suit against the Mayor pending in Superior Court to force him to grant a raise voted them by the City Council, while not pleased with the order, and resentful of its language, said they would "of course, comply with the order."

Fire Fighting Sheriff

(*Continued from page 267*)

has permeated it. So far he has not found anyone with first-hand experience to answer that question.

Another problem that looms large in the over-all fire-fighting picture concerns the railroad hazard. The majority of grass fires seem to have their origins along the several right-of-ways that pierce Boulder county.

In early western history, many devastating prairie fires were directly attributable to sparks from railroad locomotives and the threat still exists. The present day fires also begin with sparks thrown out from locomotive smoke stacks. Such fires occur with distressing frequency, particularly along up-grades throughout the county, and result in charred monuments to careless railroad operation.

Ranchers Underwrite All Equipment

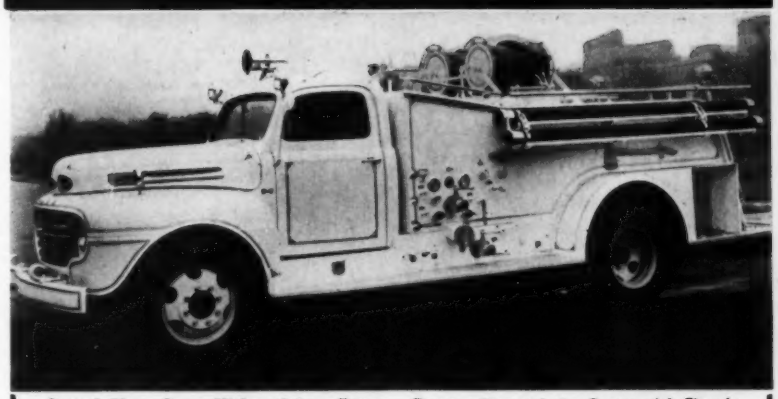
Since the Sheriff's position as fire warden is only an official statement of responsibility in Colorado, there are no state or county funds available except under special conditions. The Sheriff's energy and personality are his major assets. And the fact that an effective fire-fighting program has been built and implemented in Boulder county is testimony to Everson's personal effectiveness. A different man in the job, under the same indefinite law, could limit himself to simply "reporting" and recording fire losses and remain "officially beyond reproach."

In order to build the sort of protection needed so badly throughout the county, Everson went directly to the ranchers and explained his position.

As Sheriff he was responsible for the protection of their crops, livestock, property and safety against human enemies. If they wished the same sort of protection against the threat of fire, the state's peculiar statute would authorize him and his officers to act. But the ranchers themselves would have to provide the "tools."

The idea took root. There were no pressure tactics. Farm taxes would not be raised, and there was every indication insurance premiums would be dras-

"CENTRAL" HAS A RECORD FOR DEPENDABILITY



Central Three Stage High and Low Pressure Pumper Mounted On Commercial Chassis

FROM THE SMALLEST TRUCK TO THE LARGEST CUSTOM BUILT PUMPER—CENTRAL DESIGN AND CONSTRUCTION LEADS THE FIRE APPARATUS FIELD

CENTRAL FIRE TRUCK CORPORATION
4437 MANCHESTER ST. LOUIS 10, MO.

Write for our new 62-page catalogue

FIRE CHIEFS SAY—

"When Fire Starts — Seconds Count"

PROGRESSIVE CHIEFS are now looking to automatic fire detection for the true answer for stopping the increase in fire losses.

ATMO is the famous "Rate of Rise" system that automatically calls the fire department and sounds the alarm within seconds when fire starts.

ATMO ACTS in SECONDS to STOP FIRE

The ATMO System is approved by
Underwriters' Laboratories, Inc.
Factory Mutual Laboratories, Board of Standards and Appeals, City of New York

J. H. SCHARFF, Inc.
36 MAIN STREET, ORANGE, NEW JERSEY
ORANGE 5-6002

It will help if you will mention FIRE ENGINEERING *when writing advertisers*

INVINCIBLE
NOZZLES

with
HOSE
MANIFOLD

•

Just another type —one of many— made by pioneers in nozzle manufacture.

•

"All American Choice"

•

Seldom the lowest priced but always the best.

•

F. N. McINTIRE BRASS WORKS

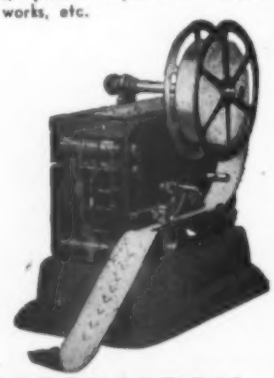
Successors to A. J. Morse & Son, Inc.

Boston, Mass.

1837 — 1949

FOR ACCURATE
FIRE ALARM RECORDS
HARRINGTON PR-10
FIRE ALARM

THIS punched tape register automatically makes records of the fire alarms or other emergency signals as transmitted over such circuits, in central fire alarm stations, outlying fire stations, police department offices, water works, etc.



HARRINGTON
SIGNAL COMPANY

MOLINE . . . ILLINOIS

In Canada:
C. E. Hickey & Sons Ltd., Hamilton, Ont.

tically lowered. No assessments would be made. If the equipment could be obtained, every rancher in the area would receive the protection it offered regardless of their own contribution toward its purchase.

This was the sort of approach that appealed to the Colorado ranchers, and they contributed generously.

Since the first rural fire truck began operating twelve years ago additional money has appeared irregularly but often. If a rancher has a good season, it is not unusual for him to stop in the Sheriff's office during a trip to town and deposit five, ten or fifty dollars in the fire kitty without solicitation.

More often than not, the contributions are a complete surprise to Everson and his deputies. In addition to swelling the fund for future equipment, such contributions renew the lawmen's conviction that they are doing an unusual job in this fire-fighting business . . . and a good one.

The Greatest Fire

The present Boulder County was on the fringe of the greatest fire ever to strike the West—possibly the greatest in the world.

At the close of 1864, Cheyenne tribesmen were on the warpath throughout western Kansas and eastern Colorado. Their depredations sometimes reached as far as Denver and other mining settlements along the foothills. All travel across the plains was brought to a standstill. Wagon trains and stage coaches would not venture beyond Fort Leavenworth for scalpers were out on all trails. The transcontinental mail was re-routed through Nicaragua. The frontier was isolated.

The military commander in the West, General Mitchell, was faced with the almost impossible task of reopening the trails and ridding the plains of the red marauders. Since the Cheyennes could live off the country and travel longer and faster than military force, they could not be checked by infantry or cavalry.

Mitchell finally settled on a bold, gargantuan plan.

He telegraphed orders to every outpost along the 300 miles from Fort Kearny, Nebraska Territory, to Denver City for troops and settlers to prepare to set the prairie on fire! On January 27, 1865, the wind shifted to the northwest.

The signal was given at sundown. Troopers and frontiersmen throughout the 300-mile stretch lighted bundles of straw and dragged them behind their galloping horses until they met men riding from the opposite direction.

The vast conflagration gathered, swelled and leaped away to the southward.

On January 30th, it jumped the Arkansas river—two hundred twenty miles away, and roared on into the Texas pandhandle . . . and historical oblivion.

No one knows how many Indians were killed in the fire: probably not a great number for there was evidence that the redmen started backfires to save their tipi villages. But the blackened ranges had been emptied of buffalo and small game, the Indian's commissary, and the Cheyennes were forced to move north into Wyoming and relinquish their grip on the central plains.

WM. BENDER, JR.

In the Fire Service—
THERE'S
NOTHING
"JUST AS GOOD"

The fire service prides itself on buying "the best," everytime. INSIST on ATLAS—everytime—and you'll get the best life net!

ATLAS LIFE NETS

ATLAS SAFETY EQUIPMENT CO., INC.

27 WARREN ST. NEW YORK 7, N. Y.

FLOODLIGHT Danger SPOTS!

Operate
• LIGHTS
• TOOLS
• PUMPS
• BLOWERS

Ready for instant use. Onan Electric Plants provide dependable power for floodlights and tools anytime—anywhere. These lightweight plants are easily carried into trouble areas; compact enough to fit into small space for truck installations. Portable models available in capacities from 350 to 5,000 watts, powered by one and two-cylinder, 4-cycle air-cooled engines.

ONAN ELECTRIC PLANTS—A.C.—350 to 35,000 watts in standard voltages and frequencies: D.C.—600 to 15,000 watts, 115 and 230 volts. Battery chargers—500 to 6,000 watts, 6, 12, 24, 32 and 115 volts.

Plant shown is Model 15 DL-14 1500 watts, 115-volt D.C.

Onan PRODUCTS

D. W. ONAN & SONS INC.
4544 Royalston Ave., Minneapolis 5, Minn.

ONAN ELECTRIC PLANTS

BODY-GUARD
BUNKER SUITS
FOR COMFORT & PROTECTION

WE ARE DISTRIBUTORS FOR
SIREN BOOTS

We have been supplying **FIREMEN'S CLOTHING** for over 25 years.

Any fireman can have a catalog by writing—

BODY-GUARD MANUFACTURING CO.
ST. JOSEPH - - MISSOURI

Order your
Memorial Badges
NOW!

Plan your Memorial Day badge presentation—now! Preferred for design, finish and permanence. Order immediately and be sure of Memorial Day delivery.

Send for free Booklet B with complete illustrated selection of badge designs now available.

Also ask for free Catalog 49, our 88-page book of Facts on new Fyr-Fyter Fighting Equipment and accessories.

FYR-FYTER PRODUCTS
19 Beekman St. New York

Convention Dates

April 23—NEW JERSEY STATE FIRE CHIEFS ASSOCIATION. Spring meeting, Bound Brook, N. J. Secretary, Clarence H. Dougal, 64 Harrington Avenue, Westwood, N. J.

Apr. 24-25—INTERNATIONAL RESCUE AND FIRST AID ASSOCIATION. Annual meeting, Washington, D. S. Secretary, Captain Julian S. Wise, 323 Luck Avenue, S. W., Roanoke, Va.

Apr. 24-26—NEBRASKA STATE FIREMEN'S TRAINING SCHOOL. Annual meeting, Grand Island, Neb. Director, J. I. Fetters, Asst. State Supervisor, Trade & Industrial Education, State Capitol, Lincoln 9, Neb.

Apr. 25-29—SOUTHEASTERN KENTUCKY FIRE SCHOOL. Regional fire school, Puntsville, Ky. For information contact Captain V. A. Beam, 818 Sutcliff Avenue, Louisville, Ky.

May 2-4—SOUTHEASTERN ASSOCIATION OF FIRE CHIEFS. Annual meeting, Jacksonville, Fla. Secretary-Treasurer, Chief Walter W. Stephen, Box 904, Anniston, Ala.

May 4-6—NORTHWEST FIRE SCHOOL. Annual meeting, Auditorium, State Office Building, St. Paul 1, Minn. Director, Leonard C. Lund, Deputy State Fire Commissioner, St. Paul, Minn.

May 5-7—KANSAS STATE FIREMEN'S ASSOCIATION. Annual meeting, Emporia, Kans. Secretary, Loren R. Bass, 3000 West 18th Street, Topeka, Kans.

May 5-7—FLORIDA STATE FIREMEN'S ASSOCIATION. Jacksonville, Fla. Secretary, E. J. Langley, Florida State Hospital, Box 344, Chattahoochee, Fla.

May 8—NEBRASKA FIRE SCHOOL. Regional meeting, Dodge, Neb. Director, J. I. Fetters, Asst. State Supervisor, Trade & Industrial Education, State Capitol, Lincoln, Neb.

May 9-12—ASSOCIATION OF CANADIAN FIRE MARSHALS and DOMINION FIRE PREVENTION ASSOCIATION. Annual meeting, Regina, Sask. For information contact W. L. Clairmont, Dominion Fire Commissioner, Ottawa, Ont.

May 10—NEBRASKA FIRE SCHOOL. Regional meeting, Loup City, Neb. Director, J. I. Fetters, Asst. State Supervisor, Trade & Industrial Education, State Capitol, Lincoln, Neb.

May 10-11—WESTERN KENTUCKY FIRE SCHOOL. Regional meeting, Owensboro, Ky. For information contact Captain V. A. Beam, 818 Sutcliff Avenue, Louisville, Ky.

May 12—NEBRASKA FIRE SCHOOL. Regional meeting, Kearney, Neb. Director, J. I. Fetters, Asst. State Supervisor, Trade & Industrial Education, State Capitol, Lincoln, Neb.

May 12-14—OREGON STATE FIRE CHIEFS' ASSOCIATION AND OREGON STATE FIRE FIGHTERS' ASSOCIATION. Annual meeting, North Bend, Ore. President, Oregon Fire Chiefs Association. Otto Karg, Baker, Ore.

May 15—NEBRASKA FIRE SCHOOL. Regional meeting, Arapahoe, Neb. Director, J. I. Fetters, Asst. State Supervisor, Trade & Industrial Education, State Capitol, Lincoln, Neb.

May 16-19—NATIONAL FIRE PROTECTION ASSOCIATION. Annual meeting, San Francisco, Cal. General Manager, Percy Bugbee, 60 Batterymarch Street, Boston, Mass.

May 17—NEBRASKA FIRE SCHOOL. Regional meeting, Seward, Neb. Director, J. I. Fetters, Asst. State Supervisor, Trade & Industrial Education, State Capitol, Lincoln, Neb.

May 17-20—IOWA FIRE COLLEGE. Annual meeting, Iowa State College, Ames, Ia. Director, R. C. Byrus, Fire Protection Engineer, Iowa State College, Ames, Ia.

May 19—NEBRASKA FIRE SCHOOL. Regional meeting, Nebraska City, Neb. Director, J. I. Fetters, Asst. State Supervisor, Trade & Industrial Education, State Capitol, Lincoln, Neb.

May 23-27—ARSON INVESTIGATORS' SEMINAR. Annual meeting, Purdue University, Lafayette, Ind. Director, Professor J. L. Lingo, Public Safety Institute, Purdue University, Lafayette, Ind.

May 22-28—NORTHEASTERN KENTUCKY FIRE SCHOOL. Regional fire school, Morehead, Ky. For information contact Captain V. A. Beam, 818 Sutcliff Avenue, Louisville, Ky.

May 27-28—EASTERN ASSOCIATION OF FIRE CHIEFS. Annual meeting, York, Pa. Secretary, Charles E. Clark, Box 271, Wayne, Pa.

June 2—NEBRASKA FIRE SCHOOL. Regional meeting, Ogallala, Neb. Director, J. I. Fetters, Asst. State Supervisor, Trade & Industrial Education, State Capital, Lincoln, Neb.

June 5—NEBRASKA FIRE SCHOOL. Regional meeting, Scottsbluff, Neb. Director, J. I. Fetters, Asst. State Supervisor, Trade & Industrial Education, State Capitol, Lincoln, Neb.

June 5-8—NEW YORK STATE ASSOCIATION OF FIRE CHIEFS. Annual meeting, Syracuse, N. Y. Secretary-Treasurer, Chief Henry F. Drake, Clinton Corners, N. Y.

New!
TRIPPE FRONT AND REAR FLASHER LIGHT CLEARS THE WAY

A gleaming, chromium Beauty, 7½" in diameter that sends its RED warning front and rear at 60 times a minute. In spite of its size it is very light and easily mounted on its aluminum pedestal.

Quality for which TRIPPE is famous, plus its extremely low price makes this Type FRF-1 a **must** for all fire equipment.

Your supplier has this light or can quickly get it.

TRIPPE MFG. CO.
CHICAGO 8, ILL.
Circular on Request.

BEAVER FINGER RING CUTTER
FOR HAND INJURIES...

Burned, jammed and swollen fingers are common injuries in many fires, loss of time and tragic results can be avoided if EVERY FIRE DEPARTMENT'S FIRST AID KIT contains a BEAVER RING CUTTER that removes a tight ring in 4 seconds. Easy to operate, inexpensive, and made by a leading Surgical Instrument manufacturer.

$7.50
LIST

Extra saws always in stock. 85c. Mail coupon, with money back guarantee.

RUDOLPH BEAVER
WALTHAM 54, MASS.

Company .....
Street .....
City..... Zone.... State.....
Dealer's name .....

Rate $6 per inch less 10% for three or more consecutive insertions.

Classified Advertisements

Closing date for copy 25th of month preceding date of issue.

FIRE FIGHTING EQUIPMENT

Government Surplus Equipment

2# and 15# CO_2 Portable Extinguishers—100# CO_2 Stationary Extinguisher Units—300# CO_2 Extinguisher Trailers—20, 25 and 30 Bank of 50# CO_2 Cylinder Systems complete—50# CO_2 Cylinders—40 gal. Wheeled Foam Extinguishers—40 gal. Foam Charges—Dry Ice Converters—Linen and Rubber Fire Hose—Liquid Foam Nozzles with Hip Pack—Liquid Foam Solution—Foam Pressure Proportioners—Foam Accumulators—Ventilating Hose—Hose Wall Reels—Heat Thermal Units — Fog Nozzles — Siamese Gate Valves—CO_2 Hose for portable extinguishers—Oxygen Masks—2½ gal. Fire Extinguishers—and many other items.

At least 50% to 85% Savings on all items; write for full particulars.

ABSOLUTE FIRE PROTECTION COMPANY
1081 Arlington Ave., Plainfield, N. J.

FIRE EXPERT AVAILABLE

Executive officer recently retired from the New York City Fire Service with over 35 years experience in FIRE—control and extinguishment—prevention—salvage—protection (Structural, Life and Occupancy)—investigation—inspection—supervision—lectures—drills and training guidance. Member of and consultant with numerous fire educational, high ranking service officers and technical associations, International, National and Local—State, County and Municipality. Served on panel National Defense. Address your problems or offers to the undersigned, who will give them earnest, careful and full consideration.

WILLIAM H. TAUBERT
Deputy Chief of Staff and Operations (Retired)
85-91 66th Road, Forest Hills, N. Y.

FOR SALE

75 ft. 1922 model American-LaFrance Aerial Truck in good condition, ready for service. Solid tires. Total of 340 ft. of ladders, including 1—40 ft. extension ladder and 1—50 ft. extension ladder. Information may be had by contacting:

M. E. CLARK, CHIEF
Fire Department, Williamsport, Pa.

FOR SALE

1948 Ford racing truck for tournament use. 100 horsepower motor, 6 ply tires, steel body, never used. Painted red, but not lettered. Reason for selling — the Racing Team has disbanded. For further information write to:

JOSEPH A. BRENNAN, CHIEF
BRIDGEHAMPTON FIRE DEPT.
Bridgehampton, Long Island, New York

WANTED

SIREN single phase 60 cycle, 220 volts 3 to 7½ H. P. Commissioners Fire Dist. No. 2, Niskayuna, N. Y. Write to:

ELBERT L. CLUTE, SECRETARY
R.D. #1, Box 386
Schenectady, N. Y.

PUMPER TO SELL

1921 Seagrave Pumper 750-Gallon with four-gate discharge—in usable condition. Write to:

JOHN K. GOLDSWER—BOROUGH CLERK
Carlstadt, New Jersey

FOR SALE

LaSalle Motor Ambulance 1937 model. In excellent condition. FRIENDSHIP FIRE CO., Linwood, Pa.

FOR SALE

1818 hand pumper recently rebuilt for exhibit. All parts original. Body of solid mahogany with inlaid design. Write to:

HARRISONBURG FIRE DEPARTMENT
NUMBER ONE
56 Newman Avenue
Harrisonburg, Virginia

REPRESENTATIVES

Established Fire and Police Equipment dealers or experienced individuals wanted in states of Arizona, California, Kansas, Oklahoma, Texas and Washington. Complete line of Police and Fire lights. Protected territories, fair prices. Write us your territory preference and references.

ARGUSLITE CO.
Blue Ridge Summit, Penna.

WANTED

Dealer—Distributors to sell fire apparatus manufactured by well-known Factory. Also popular line of high grade fire hose. Prompt Delivery. Attractive proposition. Address Box 15, c/o FIRE ENGINEERING, 24 West 40th St., New York 18, N. Y.

WANTED

Pictures or Negatives of Horse Drawn and Modern Fire Apparatus.

Also, some of fires, showing fire apparatus in action with streams from deck pipes, Water Towers and Hook & Ladder Trucks.

B. J. STEVENS
164 Seaview Ave., Jersey City 5, N. J.

"FIRE ENJINES"

Famous WILL-O-LINE 19th Century horse drawn models in ½" scale. LaFrance Combination $3.50. Rumsey Reel $2.00. Amoskeag Steamer $6.50. Others. Complete parts and instructions. Write for circular.

BAY MODELS BOX 1014
Braintree 84, Mass.

FOR SALE

Seagrave — 600 Gal. Pumper with 1100 Gal. Deck Pipe. Good condition. Ideal spare apparatus for small village. Contact:

VILLAGE CLERK
NYACK, N. Y.

FOR SALE

AHRENS FOX Piston Pumper 1922 model in fine shape. 900 gallon capacity. Passed Underwriters Test a few months ago. Excellent shape, and in service. For further information write to:

ABINGTON FIRE CO.
Abington, Pa.

WANTED

Fire Equipment Dealers to sell Morning Pride Rubber and Canvas Rubber Fabric Fire Coats and Fire Pants, All Wool Detachable Liner, Mitts and Suspenders.

Write today MORNING PRIDE MFG. CO., 1986 Home Ave., Dayton 7, Ohio.

FOR SALE

1933 Emergency Truck — Diamond T. Fully equipped with Koehler Generator, Flood Lights, etc. Contact:

VILLAGE CLERK
NYACK, N. Y.

VILLAGE OF WILLISTON PARK, Nassau County, New York, will sell to highest bidder: Standard light duty "Truscon" Flood light tower, 60 ft. high, galvanized structural steel, angles bolted. Can be shipped entirely knocked down, in 3 sections or completely assembled. Complete with ladder, railing and platform. Good condition. Shipping weight approx. 3,300 lbs. Used for flood lights or fire siren. To be removed by buyer.

POSITION WANTED

Retired Fire Officer seeks position on municipal Fire Department or with Industrial Plant as fire inspector. Would consider any worthwhile offer and go anywhere. Best references as to character and ability. Write to Box 65, care of FIRE ENGINEERING, 24 West 40th St., New York 18, N. Y.

FOR SALE

Forty — complete uniforms, Blue and Gold, suitable for Band or Fire Department. For information write to:

HARRISONBURG FIRE DEPARTMENT
NUMBER ONE
56 Newman Avenue
Harrisonburg, Virginia

FOR SALE

Palm Fiber Fire Broom. The Best "Fire Fighter" for Field Fires. Selected for its flexing and fire resisting qualities. Metal bound at head. Unexcelled for sweeping field fires. Made by the makers of the original fire broom. No. 62F Palm Fibre Fire Broom in lots of six or more, each $1.50. S. Ervin Diehl, Jr., 1229 N. Second Street, Philadelphia 22, Pa.

SPECIAL BINDERS AVAILABLE

Every issue has something in it that you want to keep for future reference. If you have one of our standard handy binders, you will have every article at your fingertips and a complete yearly index of everything we have published. The binder holds 24 issues and two yearly indexes.

Price $2.50

CASE-SHEPPERD-MANN PUBLISHING CORPORATION

24 West 40 St., New York 18, N. Y.

NO UNSEEN HAZARDS

That's why firefighters prefer

ACME
Full-Vision
FD Gas Masks

Only the Acme gas mask gives you full, unobstructed vision —up, down and to either side. This means greater protection because you can see as well as without a mask. Acme FD canisters protect against smokes, mists, fumes, dusts and gases. Specify Acme—seeing is believing.

Free Bulletins on Request

ACME
PROTECTION EQUIPMENT CO.
3037 West Lake St., Chicago 12, Illinois

CARPENTER LIGHTS

HIGH POWER PORTALITE

The finest dry battery portable light made. Mile range. Powerful searchlight beam for 8 to 10 continuous hours. Instantly ready for any fire. Diameter 6". Size 44" high x 10" x 6". Only 9 lbs.

Write for Folder

"Master-Light-Makers for 34 Years"

CARPENTER MFG. CO.
200 Master-Light Bldg.
BOSTON-45-SOMERVILLE
MASSACHUSETTS

Convention Dates

June 7—NEBRASKA FIRE SCHOOL. Regional meeting, Chadron, Neb. Director, J. I. Fetters, Asst. State Supervisor, Trade & Industrial Education, State Capitol, Lincoln, Neb.

June 7-9—KENTUCKY FIRE SCHOOL. Annual meeting, University of Kentucky, Lexington, Ky. For information contact Captain V. A. Beam, 818 Sutcliff Avenue, Louisville, Ky.

June 9—NEBRASKA FIRE SCHOOL. Regional meeting, Atkinson, Neb. Director, J. I. Fetters, Asst. State Supervisor, Trade & Industrial Education, State Capitol, Lincoln, Neb.

June 10-11—BUCKS COUNTY FIREMEN'S ASSOCIATION. Annual parade and convention, Perkasie, Pa. Secretary, Clifford S. Shearer, Quakertown, Pa.

June 12—NEBRASKA FIRE SCHOOL. Regional meeting, Pierce, Neb. Director, J. I. Fetters, Asst. State Supervisor, Trade & Industrial Education, State Capitol, Lincoln, Neb.

June 13-16—NEW MEXICO FIRE SCHOOL. Annual meeting, Silver City, N. M. Secretary-Treasurer, F. W. Wynn, Hobbs, N. M.

June 13-17—SOUTH DAKOTA FIRE SCHOOL Annual meeting, Huron, S. D. Secretary, Robert W. Hannigan, Pierre, S. D.

June 14-17—ILLINOIS FIRE COLLEGE. Annual meeting, University of Illinois, Champaign-Urbana, Ill. Secretary, Chief Roy Alsip, Fire Headquarters, Champaign, Ill.

June 21-23—NEW ENGLAND ASSOCIATION OF FIRE CHIEFS. Annual meeting, Wentworth Hotel, Portsmouth, N. H. Secretary, John W. O'Hearn, 22 Mount Auburn Street, Watertown, Mass.

June 22-24—MARYLAND STATE FIREMEN'S ASSOCIATION. Annual meeting, Ocean City, Md. Secretary, B. R. Benson, III, 303 Bosley Avenue, Towson 4, Md.

June 23-25—MISSOURI VALLEY ASSOCIATION OF FIRE CHIEFS. Annual meeting, Fort Collins, Col. Secretary, Chief Ray Tiller, Fire Headquarters, Waterloo, Ia.

July 21-23—ASSOCIATION FOR FORMER U. S. NAVY, COAST GUARD AND MARINE CORPS FIRE FIGHTERS. Annual meeting, Franklin Legion Hall, High Street, Columbus, Ohio. Secretary-Treasurer, William J. Mignery, R. No. 5, Elkhart, Ind.

July 25—EGYPTIAN FIRE FIGHTERS ASSOCIATION. Regular meeting, Salem, Ill. Secretary, Victor L. Stocks, Carterville, Ill.

July 25-27—WISCONSIN STATE FIRE CHIEFS' ASSOCIATION. Annual meeting, Jefferson, Wis. Secretary, Chief Leo J. Girens, Fire Headquarters, Oshkosh, Wis.

July 25-28—WEST VIRGINIA FIRE SCHOOL. Annual meeting, West Virginia University, Morgantown, W. Va. Director, R. E. Hanna, Jr., Fire Service Extension Schools, School of Mines, West Virginia University, Morgantown, W. Va.

Aug. 1-2—WISCONSIN PAID FIREMEN'S ASSOCIATION. Annual meeting, Kenosha, Wis. Secretary, John Kromel, 717 56th Street, Kenosha, Wis.

Aug. 8-12—PENNSYLVANIA FIRE SCHOOL. Annual meeting, Lewiston, Pa. Director, Edgar A. Spotz, Department of Public Instruction, Harrisburg, Pa.

Aug. 12-13—VERMONT FIREMEN'S ASSOCIATION. Annual meeting, Windsor, Vt. For information, contact Acting Chief Richard C. Holmes, Windsor, Vt., Fire Department.

Aug. 16-17—NEW YORK STATE FIREMEN'S ASSOCIATION. Annual meeting, Albany, N. Y. Secretary, Roswell Miller, Roslyn Heights, L. I., N. Y.

August 20—BALTIMORE COUNTY VOLUNTEER FIREMEN'S ASSOCIATION. Annual meeting, Maryland Line, Md. Secretary, W. A. Chenoweth, 4104 Milford Mill Road, Pikesville 8, Md.

Aug. 29-Sept. 1—DOMINION ASSOCIATION OF FIRE CHIEFS. Annual meeting, Ottawa, Ont. Secretary, Chief Allan H. Clark, Fire Headquarters, Lakefield, Ont.

Sept. 6-8—KENTUCKY FIREMEN'S ASSOCIATION. Annual meeting, Covington, Ky. Secretary, Captain V. A. Beam, 818 Sutcliff Avenue, Louisville, Ky.

Sept. 9-11—COLORADO STATE FIREMEN'S ASSOCIATION. Annual convention, tournament and fire school, Colorado Springs, Colo. Secretary, Arthur J. Becker, 4250 Stuart Street, Denver 12, Colo.

Sept. 25-29—INTERNATIONAL ASSOCIATION OF FIRE CHIEFS. Annual meeting, New Orleans, La. Secretary-Treasurer, Daniel B. Tierney, 8 Robbins Road, Arlington 74, Mass.

Oct. 4-6—FIREMEN'S ASSOCIATION OF THE STATE OF PENNSYLVANIA. Annual meeting, Greensburg, Pa. Secretary, Charles E. Clark, Box 271, Wayne, Pa.

Oct. 10-13—INTERNATIONAL MUNICIPAL SIGNAL ASSOCIATION. Annual meeting, Pittsburgh, Pa. Secretary, Irvin Shulsinger, International Municipal Signal Association, 11 West 42nd Street, New York 18, N. Y.

FIREMEN'S UNIFORMS

BADGES
CAPS
INSIGNIA

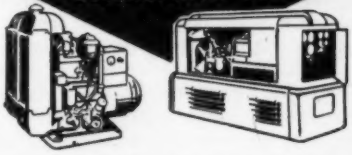
It is easy to order your uniforms by mail.

We supply an illustrated measurement form with simple instructions that show you how to take perfect measurements.

Write today for catalog No. G-60, samples of materials, price list and measurement form.

RUSSELL UNIFORM CO.
1600 Broadway, New York 19, N. Y.

Meet power failure promptly with a FAIRBANKS-MORSE GENERATING SET!



Dependable Fairbanks-Morse generating sets start to work *automatically*, the instant power supply from regular services is stopped. This is one reason why you'll find Fairbanks-Morse generators are standard equipment in many stores, office buildings, apartments, industrial plants, municipal buildings, hospitals, institutions, theaters, police and fire stations, and on farms.

There is a generating set in the Fairbanks-Morse line for every need, from 350 to 35,000 watts capacities—A.C., or D.C. For full information, see your Fairbanks-Morse dealer or mail the coupon.

FAIRBANKS-MORSE
Fairbanks, Morse & Co.
600 S. Michigan Ave., Chicago 5, Illinois
Gentlemen: Please send complete information about generating sets for standby service.

Firm Name.....
Address.....*RD*.....
City.....*State*.....
88-4

CHICAGO'S CHIEF OF PATROL

FRANK C. McAULIFFE

Says:

"WE SPREAD OVER 19,000 SALVAGE COVERS LAST YEAR.. I RECOMMEND THEM."

"We have used GREEN-BAK covers for years —

and I do not hesitate to recommend them. In 1948 we responded to 13,631 alarms and spread 19,860 covers. Salvage of physical property runs into many thousands of dollars, to say nothing of values accrued in prompt rehabilitation of premises for continued work or living. Salvage pays dividends . . . big dividends . . . in fire department public relations."

★FIRE CHIEFS

Specify *Shuredry* Salvage Covers. They pass every test for water penetration, seepage, resistance to cracking when folded, pliability in coldest weather. Fulton Green-Bak Salvage Covers are light in weight, easy to handle, and are the preference of fire departments everywhere.

★CITY MANAGERS

Other quality Fulton Products that will give you long, economical service are Fulton Triple-Strength Tarpaulins, Fulco Cotton Concrete Curing Mats.

Shuredry Salvage Covers can be obtained through your regular fire equipment dealer.

For Top Dependability, Specify

Shuredry

GREEN-BAK

SALVAGE COVERS

Approved by National Board of Fire Underwriters and by Factory Mutual Laboratories

For further information, write your nearest Fulton branch

Fulton BAG & COTTON MILLS

Atlanta • St. Louis • Dallas • Denver

Kansas City (Kans.) • Minneapolis • New Orleans

Los Angeles • New York, 434 Broadway • Winter Haven (Fla.)

ADVERTISING INDEX

FIRE ENGINEERING

APRIL, 1949

	Page
Acme Protection Equipment Co.	313
All-Out Mfg. Corp.	296
Aluminum Ladder Co.	242
America's Best Coatings, Inc.	257
American-LaFrance-Foamite Corp.	255
American-Marsh Pumps, Inc.	291
Ansul Chemical Co., Fire Extinguisher Div.	287
Atlas Safety Equipment Co., Inc.	310
Bar-Way Mfg. Co.	308
Bean Mfg. Co., John	247
Beaver, Rudolph	311
Blackinton & Co., Inc., V. H.	244
Body Guard Mfg. Co.	311
Boston Woven Hose & Rubber Co.	252
Braxmar Co., C. G.	298
Buckeye Iron & Brass Works	288
Cairns & Brother	294
Capital Fire Equipment Co., The	295
Carbide & Carbon Chemicals Corp.	248
Carpenter Manufacturing Co.	313
Central Fire Truck Corp.	309
Circul-Air Corp.	292
Darley & Co., W. S.	303
Duo Safety Ladder Corp.	230
E and J Manufacturing Co.	241
Elkhart Brass Mfg. Co., Inc.	305
Emerson Co., J. H.	Inside Front Cover
Eureka Fire Hose Div., U. S. Rubber Co.	245
Fabric Fire Hose Co.	249
Fairbanks, Morse & Co.	313
Federal Enterprises, Inc., Signal Div.	227
Four Wheel Drive Auto Co.	Back Cover
Fulton Bag & Cotton Mills	314
Fyr-Fyter Products	311
Gamewell Co.	258
General Detroit Corp.	238
General Electric Co.	306
Goodall Rubber Co.	297
Goodrich Co., B. F.	231
Gorman-Rupp Co.	286
Hale Fire Pump Co.	301; 307
Halprin Supply Co.	256
Hamilton Scale Co.	300
Hardie Mfg. Co.	303
Harrington Signal Co.	310
Howe Fire Apparatus Co.	297
Janesville Apparel Co.	308
Kohler Co.	293
Leece-Neville Co.	232
McIntire Brass Works, F. N.	310
Mack Mfg. Corp.	229
Mars Signal Light Co.	250
Maxim Motor Co.	239
Midwestern Mfg. Co.	285
Mine Safety Appliances Co.	234-235
Motorola, Inc.	253
National Foam System, Inc.	251
Niedner's Sons Co., Inc., Charles	284
Oberdorfer Foundries, Inc.	254
Onan & Sons, D. W.	310
Oren Roanoke Corp.	306
Pirsch & Sons Co., Peter	Inside Back Cover
Powhatan Brass & Iron Works	301
Radio Corp. of America, Engineering Products Dept.	246
Randolph Laboratories, Inc.	305
Republic Rubber Div., Lee Rubber & Tire Corp.	236
Rockwood Sprinkler Co.	237
Russell Uniform Co.	313
Safety First Co.	290
Scharff, Inc., J. H.	309
Scott Aviation Corp.	299
Seagrave Corp., The	243
Smith, Inc., L. B.	283
Smith & Co., D. B.	233
Stephenson Corp.	304
Sterling Siren Fire Alarm Co., Inc.	308
Trippe Mfg. Co.	311
United States Motors Corp.	302
Waterous Company	289
Wentworth-Forman Co., Inc.	240
Wooster Brass Co., The	307

The Fire Engine That Experience Produced

Independence Hall—Declaration of Independence adopted there July 4th, 1776

PHILADELPHIA

Philadelphia Bureau of Fire has joined the long list of users of Pirsch aerials. Shown above is one of four 85′ Pirsch Hydro-Mechanical Aerial Ladder trucks ordered by the City of Philadelphia.

If you want the best in aerial ladder truck design and construction buy Pirsch, the only 100% powered aerial with 18 years' performance experience behind it.

PETER PIRSCH & SONS CO. KENOSHA, WIS.

"BUILDERS OF AMERICA'S FIRST ALL-POWERED AERIAL LADDER TRUCK AND AMERICA'S FIRST 100' AERIAL LADDER"

PROOF - *not Guesswork*

Makes FWD America's Foremost Heavy-Duty Truck

To prove efficiency and economy
FWD high-balls over hilly, curved road
To prove ability to get through
FWD slogs through bumper-high mud and clay
To prove FWDs withstand distortion
FWD twists over diagonal ditches 18 inches deep
To prove safety on curves
FWD circles 100-foot unbanked course at high spe
To prove hill-climbing ability
FWD climbs 70% plank-covered grade
from dead stop
To prove advantage of four driving wheels
FWD drives through 3 feet of sand... up 6% slope
To prove tractive ability
FWD's powered front wheels climb 8-inch bea
To prove efficiency of auxiliary equipment
FWD drills pole holes in earth-boring area
To prove power and traction
FWD speeds safely on straightaway and curves

AN INVITATION TO TRUCK BUYERS

We invite you to watch FWDs pass a series of the most rigid performance tests. Ask your FWD distributor to arrange for you to visit our plant. Or — if you can't get away, ask him to show you the movie, *The FWD Story*. In either case, you will see for yourself how FWD trucks can help solve your heavy-duty trucking problems.

Walter A. Olen
President
The Four Wheel Drive Auto Co.

YOU want to know that your truck can climb steep grades . . . drive through deep snow, mud or sand . . . get you through to off-the-road locations. You want to know it can speed heavy loads safely over slippery highways . . . that it can get you around sharp curves without skidding. You want to know your truck has the stamina to insure long life . . . that it will do it without expensive mechanical breakdowns.

You can be sure it will if it's an FWD! What's more, with FWDs, you can be sure of these advantages — *even before you buy.* And here's why. On FWD's proving ground, you get proof — *not guesswork* — of what an FWD will do for you. A series of scientifically designed torture tests duplicates every operating condition you're liable to meet. Yes . . . FWDs prove themselves thoroughly.

Find out what this can mean to you. See your FWD distributor — or write direct for complete facts about FWD Trucks.

THE FOUR WHEEL DRIVE AUTO COMPANY
Clintonville, Wisconsin
Canadian Factory: Kitchener, Ontario
FOUR AND SIX WHEEL DRIVE TRUCKS

America's Foremost Heavy-Duty Truck